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Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Exclusive Used Car Dealer Plays Small Part in Fixing Second-Hand Prices—Vane

Asserts 39 States, With 31,198 Franchised Merchants, Had Only 1,928 Used Car Dealers, With $81,532,813 Volume

Chicago, Sept. 21.—Writing in the current issue of N. A. D. A., the official organ of the National Automobile Dealers' Association, C. A. Vane, general manager, says:

"One of the troubles of the automobile business, said a dealer to me not long ago, is that it is passing into the hands of the automobile dealers, and they don't know what to do with it.

"Like all wise cracks, there is a grain of truth in the remark, but it is subject to considerable amendment.

"Equally well, in a wise-cracking manner, it might be added that another trouble is that the business is passing into the hands of the automobile dealers, and the factories don't know what to do about it.

"This is rather strikingly shown by the most recent statistics released by the Department of Commerce concerning retail automobile financing in the continued gain of used car volume.

"For the first six months of 1928, in which year the figures first became available, reporting finance companies showed that new cars financed by them were 127 per cent. in number of used cars financed. In the same period in 1929 new cars were 124 per cent. of used cars. In 1930 new cars were 96 per cent. of used cars, and in the same period of 1931 new cars were only 79 per cent. of used cars.

"This used car business has always been the automobile dealer's It has been painfully his. How little it has been any one's else is illuminatingly shown in the retail survey of the Census Bureau as a part of the 1929 figures on distribution.

"According to this authority in thirty-nine states that had in 1929 a total of 89,021,256 population, there were 31,198 franchised auto-

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AUBURN SALES CHIEF RETURNS FROM TOUR

Auburn, Ind., Sept. 21.—John Tainsh, sales manager of the Auburn Automobile Company, has returned to the factory here following a trip through the Eastern states, visiting Auburn and Cord dealers and distributors.

NATIONAL TIRE DEALERS PREPARE FOR CONVENTION

Chicago, Sept. 21.—The program for the twelfth annual convention of the National Tire Dealers' Association, Inc., to be held November 15 to 18 at the Hotel Statler, Detroit is rapidly nearing completion, according to announcement today by Norval P. Trimborn, executive secretary of the association.

A definite acceptance from J. D. Tew, president of the Rubber Manufacturers' Association, as the chief speaker at the banquet November 18 has been secured, while other

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Metal Congress Opens in Boston With 70,000 Delegates Present

Technical and Entertainment Programs Promise Lively and Informative Sessions Throughout Week

BOSTON, Mass., Sept. 21.—This ancient city of culture and codfish has gone metal-minded today with the advent of some 70,000 members of the American Society for Steel Treating, the American Welding Society, the American Institute of Mining and Metallurgical Engineers and the Society of Automotive Engineers, who are attending the annual Metals Congress. The American Welding Society has its headquarters at the Copley-Plaza, while the other three organizations hold forth at the Statler.

At noon the doors of Commonwealth Pier were thrown open on the most comprehensive exhibition ever staged at a Metals Congress. The wealth of exhibits promises to keep delegates busy during the entire week of the convention.

The morning was taken up with registration of delegates and arrangements had been so well perfected that in spite of the large attendance, there was no confusion and little delay. The technical sessions of the A. S. S. T. got under way at 9.30 with a paper by H. G. Keshian of the Chase Companies of Waterbury on "Tool Steel From the Consumer's Standpoint." R. C. Brumfield followed with a talk on

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TOM DUGGAN JOINS THOMPSON PRODUCTS; MERCHANDISING CHIEF

Cleveland, O., Sept. 21.—Tom O. Duggan, for the past five years merchandising service director of the National Standard Parts Association, has joined the organization of Thompson Products, Inc., in the capacity of merchandising director. This announcement was made by Burke Patterson, Thompson service sales manager.

Tom O. Duggan

Duggan's reputation in the replacement parts field has been established by his energetic and constructive work for the jobber and garageman during the last twenty years. In this period he has built up a wider jobber-repairman acquaintance probably than any other

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CLOSER CONTACTS BY LUMBER AND CAR PLANTS URGED

Chicago, Sept. 21.—Establishment of closer contact between lumber producers and automobile body manufacturers in order to co-ordinate production and consumption of hardwoods more closely was considered by the National Hardwood

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Geo. Graham Seeks New Dealers To Handle New Low Priced Car

By CHRIS SINSABAUGH

DETROIT, Sept 21.—George M. Graham has broken the silence of two months following his retirement from the vice-presidency of Willys-Overland with the announcement, made from his headquarters in the Book Building, in this city, that he is about to launch a new car in the low-priced field.

It will be manufactured in Detroit in a modern plant, and it is expected to be ready for display at the New York show. It will be a six-cylinder, with such features as free-wheeling and cushion power, the latter a term applied to the rubber mounting of the engine.

Secrecy is maintained as to the personnel of the new organization. As yet no name for either the company or the car has been announced. It is said, however, that by November 1 the name of the car will be made known, and that by November 15 full details of the set-up will be given out.

Mr. Graham positively refuses at this tme to reveal the identity of his sponsors, except to say that his colleagues all are men of long experience in manufacturing and selling automobiles, and that he has financial backing in excess of every need.

Naturally, Detroit has been trying to solve the present mystery as to who is back of Mr. Graham,

(Continued on Page 2)

OAKLAND CAMPAIGN SHOWS 16,753 SALES AT HALF-WAY MARK

Pontiac, Sept. 21.—At the half-way mark in a sales campaign being conducted by the Oakland Motor Car Company, a combined sale of 16,753 Oaklands and Pontiacs had been delivered since August 21, when the campaign began. The contest is to end on September 30.

During the first half of the campaign 193,346 demonstrations were made by salesmen throughout the United States, 133,522 appraisals of used cars were made and more than 16,000 automobiles sold.

The campaign is known as the Pink Mitten contest, the loser being awarded a pair of pink mittens and

(Continued on Page 2)

MORSE CHAIN GETS SIX LARGE ORDERS FROM CAR MAKERS

Chicago, Sept. 21.—Six large orders from automobile manufacturers have been received in the last thirty days by the Morse Chain Company, Detroit and Ithaca, a division of Borg-Warner Corporation.

These new contracts were for timing sprockets and chains used as standard equipment on popular makes of cars. The company also has received two sizable contracts from the export field. This was announced today by C. S. Davis, president of the parent corporation.

The outlook of the Morse Chain Company, according to President Davis, indicates that numerous orders may be received within the next few months from the leading automobile manufacturers in planning for their winter and spring production schedules. Products of the Morse Chain Company are used as standard equipment on numerous makes of passenger cars and trucks.

DUESENBERG-ILLINOIS SALES PASS 1930 TOTAL

Chicago, Sept. 21.—Total retail sales of the Duesenberg-Illinois Company, 333 North Michigan Ave., for the first eight months of 1931 were approximately $50,000 more than for the entire year of 1930, H. T. Ames, vice-president of Duesenberg, Inc., announced today. The eight months' period of 1931 shows an increase of slightly over 20 per cent. over the same period in 1930. Unit sales to September 1, 1931, were 18 per cent. greater than for the entire year of 1930.

HANCH PREDICTS STARTLING VALUES IN CARS FOR 1932

Chicago, Sept. 21. — Important changes and definite improvements in automobiles may be expected next year, due to the slack season caused by the depression, according to C. C. Hanch, general manager of the National Association of Finance Companies, who pointed out today that all through the history of the automobile industry slack times have meant better cars for the public.

"The engineering departments of the various automobile manufacturers are pressed with the problems of production during boom times," said Mr. Hanch. "The slack times give opportunity for research and painstaking experimentation, which always lead to a better product.

"Information received by the association indicates that at least half a dozen important improvements are being developed by various automotive engineers, and some of them probably will be incorporated in next year's cars."

Among the improvements which

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BUDD WHEEL GETS LARGE ORDER FOR NEW TYPE STEEL WHEELS

Philadelphia, Sept. 21.—The Budd Wheel Company has just secured a large order from one of the principal automobile manufacturers for the new steel artillery type wheel, according to an announcement made here today. Deliveries on this order are to start next month.

In accordance with its usual policy, the Budd company declined to divulge the name of the manufacturer, which has previously been a large user of wood wheels, and has now gone 100 per cent. to steel wheels.

Late News Flashes

New Haven, Conn., Sept. 21.—Professor Irving Fisher's wholesale commodity price index for the week ending September 19 stands at 69.0. This is an increase of 0.1, the first in some time

* * *

Youngstown, O., Sept. 21.—Steel plant operations in this district during the week ended September 19 stand at about 39 per cent. of capacity, which compares with 41 per cent. the week before and 54 per cent. at the same time last year. Twenty-six of the sixty-six open hearth furnaces here will probably be melting during the coming week.

* * *

Los Angeles, Sept. 21.—Crude oil output in the California fields last week was 511,300 barrels daily, an increase of 1,700 barrels over the previous week, according to California Oil World.

Seek New Dealer Group For New Low Priced Car

(Continued from Page 1)

and one of the guesses made is that the new company is sponsored by an old-established automobile manufacturing concern seeking an opening in the low-priced field through a separate set-up.

To market the new line Mr. Graham has started active work building up a new dealer organization. His initial approach is by means of a prospectus, which well outlines his proposition.

"The introduction of this new car is based on a belief that two years of depression have changed the nation's buying habits. Not all our people have experienced lessened income, it is true. Many could still spend in the manner of 1928. But all seem in a new mood. They want more for their dollar.

"The same attitude was manifest at the close of the 1921 depression. People then demanded, as now, a surplus of value in everything they bought. They gave their business to the manufacturer who was ready to provide most for the smallest money outlay.

"You will recall that the motor cars which most quickly met this public requirement after the ordeal of 1921 were the motor cars that forged to the front in sales. That this will be the case again is the considered opinion of the group for which I am acting. That is why we are getting ready with a new car—and why we are making it an unusual car."

In the opinion of Mr. Graham and his colleagues, the time seems right for the introduction of a car that will meet the mood of the 1932 buyers. Continuing in his prospectus, he says:

"The car we are planning will be a car new in name, in design, in value and in price. It will have room, performance and beauty. It will include every modern mechanical advance and selling feature. It will enable the car buyer to reduce his average expenditure for a car as much as $300—and still obtain the essential advantages of higher-priced cars. This constitutes a strong appeal to economy when most people are thinking of saving money. We know of no surer way to develop sales.

"This car will sell not only in a market where sales volume is already large, and where continuous future sales are certain, but it will also attract people accustomed to buying in higher priced fields. We are going to put more into this car than the public expects. It will have size and it will have stamina.

"We are going to advertise this new car dramatically, soundly and consistently — with every known means of exploitation. If it were possible to tell you the names of the men behind the car, you would know instantly that it is destined to be a sure-fire and lasting success."

NATIONAL TIRE DEALERS PREPARE FOR CONVENTION

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leaders of the industry scheduled for addresses include F. B. Davis, Jr., chairman of the board of the United States Tire and Rubber Company, and P. W. Litchfield, president of the Goodyear Tire and Rubber Company.

Following an officers and directors meeting November 15 the convention will be opened on the 16th by Martin J. Barry, president of the association, who will introduce Mr. Trimborn for presentation of the association's truck and heavy duty tire program.

Among the subjects to be discussed during the convention will be those of both general and specific nature, including truck tire problems, tire dealers' rim problems, business management, recommended accounting methods, battery merchandising, wheel alignment, brake service and how to merchandise it, tire sales from a super-service sandpoint, tire sales from a strictly tire store standpoint, benefits of the new form of association organization, dealers' advertising problems and the present-day opportunity of the independent dealer.

One of the high lights of the convention will be an attempt to select a slogan for dealer use in appealing to the public to buy new tires in the interest of economy rather than try to get few more doubtful miles out of the old tires. A spirited campaign has been conducted for several months among the membership, with hundreds of slogans submitted.

Starting Wednesday, September 23, Mr. Trimborn is making an extended tour throuugh the Southwest and Middle West for purposes of furthering the association's organization in the form of local units. His itinerary includes Tulsa, Okla.; Kansas City, Mo.; Denver, Col., and Omaha, Neb.

SPARKS from DETROIT

Dodge in the Great War

* * *

Edenburn and Wagner

* * *

* * *

Studebaker's Records

Chris Sinsabaugh—Detroit Editor

NATURALLY, with the American Legion in session in Detroit this week, some of our leading automobile executives are raking the ashes of the past and telling us what their companies did to help win the Great War. Take the case of Dodge Brothers Corporation and let President K. T. Keller read the archives for you and you will understand the important part that concern played and how it delivered the goods.

When Uncle Sam appealed for help the Dodge brothers, John and Horace, heard the call, proffered the use of their manufacturing facilities and were told they were expected to build recoil mechanism. Inside three months a special building with a concrete floor covering eleven acres was in operation, turning out twenty giant recoils daily. The recoil was of the hydraulic pneumatic type, its particular function being to prevent a big gun from tearing itself to pieces when fired. Each recoil was made from a solid billet of steel weighing 7,800 pounds and seven feet nine inches long, twenty-seven inches wide and thirty inches high. Finished and assembled, it weighed 3,140 pounds.

* * *

BUT Dodge Brothers did not stop here. President Keller tells me that at the outbreak of the war the company received an order that before it was filled during the extent of the conflict totaled 17,370 passenger cars and trucks. The government bought 1,035 of these cars from dealers direct, according to official records, while unofficial delivery sheets show that an additional 805 were purchased from the retailers.

And we don't have to tell you how these cars did their stuff. No wonder the soldier folk termed them affectionately, "the Little Dodges," with a capital "L" for they certainly did their stuff, despite bum gas and oil and roads that were roads only on the map.

* * *

WHEN Eddie Edenburn, Detroit member of the A. A. A. Contest Board, which is only one of his many titles, officiated at the recent Syracuse, N. Y., dirt track meet, one of the classics, he met up with Fred J. Wagner of Covina, Cal., famed since the birth of the industry as a race starter. It was the first time in fourteen years that Edenburn and Wagner had worked together at the same meet.

Starting the Syracuse century is the only Eastern engagement Wagner has these days and annually he made the long jump from the Coast for this one job. But Wag hasn't dropped the checkered flag for keeps; he is still working at his unique profession on the Pacific Coast. They're running two meets a week at Ascot, the Los Angeles track, drawing good crowds and the racing boys are making some money. Wag wields the flags. He's looking fine, Edenburn says, showing little evidence that Old Father Time has recorded sixty-five birthdays for him.

* * *

DO higher executives work hard? I'll say they do. Here is Roy Fulkner, president of Auburn, visiting in Buffalo, on a vacation with his wife and baby. Here is A. R. Gribben, head o fAuburn sales in New York, talking to Roy over long distance and tells him what a big party there is going to be in New York with all the dealers and distributors in the metropolitan district to attend. He didn't have to say another word, nor did Roy say anything, but early next morning Roy packs up his wife and child and drives to New York in record time to be present at the meeting and get an ovation that lasted ten minutes. Did the salesmen, the dealers and distributors and others appreciate it? That is the sort of executive guidance that makes men back up an organization, makes them fight for it, makes them feel that their every effort only remotely approaches that of the highest executive of the company.

MOTOR INDUSTRY HAD 1,827,204 WORKERS IN 1930

Washington, Sept. 21.—Automobile factories employed 640,161 workers on April 1, 1930, returns of the Bureau of the Census show. Automobile repair shops employed 257,746; garages, automobile laundries and greasing stations, 423,975, and automobile agencies and filling stations, 505,322.

Combined employment in the automotive field and related units was 1,827,204. This was 3.7 per cent. of the total of 48,832,589 workers ten years of age and over gainfully employed.

The report showed that of the whole number of gainful workers 38,053,795 were males, forming 76.2 per cent. of the male population ten years old and over, or 61.2 per cent. of the total male population of 62,137,080. The 10,778,794 female gainful workers formed 22.1 per cent of the female population ten years and over, or 17.8 per cent. of the total female population of 60,637,966.

Distribution of male and female employment in the automotive and related industries follow:

	Male	Female
Automobile factories	594,889	45,272
Automobile repair shops	253,769	3,977
Garages, automobile laundries and greasing stations	408,934	15,041
Automobile agencies and filling stations	472,120	33,202

AUBURN SALES GAIN AT CANADIAN EXHIBIT

Auburn, Ind., Sept. 21.—Auburn sales at the Canadian National Exhibition, which closed in Toronto September 12, were almost double those of last year, R. S. Wiley, export manager, announced today. Wiley has just returned to the States from a ten-day trip through the provinces.

"While Canada has felt the depression somewhat," Wiley said, "the general business tone is good. Our dealers were very gratified over the showing at the National Exhibition and the interest which was shown in the Auburn and Cord lines. On August 1, Auburn and Cord sales in Canada were more than 100 per cent. greater than during the entire year of 1930, and there is every indication that fall sales will continue well ahead of any previous year."

DEALERS PARTICIPATE IN ANNUAL BALL FESTIVAL

Madison, Wis., Sept. 21.—A number of local automobile dealers participated in a four-day automobile show here in connection with the ninth annual east side fall festival. H. J. Loftsgordon served as chairman of the automobile display committee. Dealers displaying automobiles included Kayser Motors, Inc., Hult's Capital Garage, the Madison Motor Car Company, the Gillespie Motor Repair Company, the Jacobson Auto Company and Quality Motors, Inc.

OAKLAND CAMPAIGN SHOWS 16,753 SALES AT HALF-WAY MARK

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the winner a pair of dress gloves. Twenty-one zones are matched against each other, the Eastern division led by D. U. Bathrick, eastern sales manager, and the Western by H. M. Stephens, Western sales manager. A point system has been instituted, with demonstrations counting 1 point, appraisals 2 points, delivery of a new Pontiac or used car 10 points and delivery of an Oakland 20 points. Each sales division, zone and dealership has a quota for the contest.

The low man in each organization is designated as Pink Mitten Sam and his name placed on a comic cardboard figure of a man with pink mittens. To date, the East is leading the West in sales, 49.6 per cent. of its quota having been secured, to 43 per cent. for the West. Atlanta, Ga., zone is leading with 81 per cent. of its quota. Los Angeles, Cal., is second with 72 per cent.

Starting September 1, another campaign, for retail salesmen only, has been announced. The campaign will last two months. Salesmen will be offered a choice of 1,000 premiums, secured by acquiring points similar to the zone contest.

NEWARK TO HOLD SHOW WEEK OF JANUARY 16

Newark, N. J., Sept. 21.—Plans disclosed at the annual convention of the National Automobile Show Managers' Association held in Toronto last week promise that the 1932 shows will exceed in general interest any of those in the past. The dates assigned for the Newark Automobile Show are January 16-23, immediately followng the close of the big national show in New York, and local dealers are already making arrangements with their factories to bring Newark the pick of the exhibits from the national show.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRINGS RESULTS

Another Name Added to the Long List of Morse Chain Users

THE NEW DE VAUX 6-75

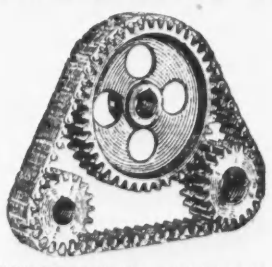
MORSE

GENUINE *SILENT* CHAINS

The following cars are Morse equipped:

AMERICAN

Cadillac V-8
Cadillac V-12
Cadillac V-16
Chrysler 8
Chrysler 8 De Luxe
Chrysler Imperial 8
Continental Motors
De Soto 6
De Soto 8
De Vaux 6-75
Dodge Bros. 6
Dodge Bros. 8
Durant 6 (614)
Durant 6 (617)
Essex 6
Hudson 8



La Salle 8
Lincoln 8
Oakland V-8
A manufacturer of high grade eights (Name on request)
Peerless 8 (Model B)
Peerless 8 (Model C)
Pontiac 6
Reo Flying Cloud 6
Reo Flying Cloud 8
Reo Royale 8

FOREIGN

Adler
Audi
Brennabor
Fiat
Hansa Lloyd
Vauxhall
Wanderer Werke
Zschopauer

MORSE CHAIN COMPANY
Ithaca, N. Y.; Detroit, Mich.
LETCHWORTH, HERTS, ENGLAND
Division of Borg-Warner Corporation

Hupmobile 8 (C-100) Hupmobile 8 (U-133)
Hupmobile 8 (H-133) Hupmobile Century 8

How De Vaux Distributor Exceeds Quotas

Newark, N. J., Concern Uses Every Possible Merchandising Idea to Attract the Greatest Number of Prospects.

USING every merchandising method possible to attract the greatest number of prospects has aided the United States Motor Sales Company of Newark, N. J., state distributor for the De Vaux, to sell more than its quota in August, with indications that September will be a banner month.

A week prior to scheduled newspaper announcement of the new fall series De Vaux in Newark, M. Stadfeld, president of United States Motor Sales, curtained the showroom windows with huge banner signs describing the features of the new car.

Special cars were set aside for demonstration purposes of the optional free wheeling. These demonstrations are entirely different from the usual run. With the prospective purchaser seated alongside the driver, the door on the driving side is kept open by means of a regulation door hasp. The driver then swings his feet entirely out of the car until they reach the running board. The hand throttle is then set at approximately forty miles an hour. The prospect is asked to move the gear-shift lever into any desired position; that is, from first to high, from high to second and vice versa. This is performed in such a manner as to convince the prospective purchaser that it is entirely unnecessary to use the clutch pedal at any time, except when starting and when going into reverse.

Arrangements are now being worked out to have a De Vaux erected on a permanent base or foundation in the showroom, with the motor being turned over by means of a high-powered electric motor, the public being invited to sit behind the wheel and drive the De Vaux under exactly the same conditions as would be encountered while actually driving the car on the road.

A white promotion car is also being equipped with a special radio broadcasting system. It is planned to loan this car to the dealers operating through the United States Motor Sales Company for demonstration purposes.

All this is supplemented by an extensive local advertising campaign. In lieu of large-sized copy, small four or five inch single column ads are utilized. This copy appears regularly every week day in the city's newspapers, always on the sport page and always in the same place.

A major factor enters into this, Mr. Stadfeld says, as the local baseball club is in the midst of a hectic battle for the league pennant, and as a result the sport pages are very widely read.

An intensive direct mail campaign was also launched a few days previous to the initial showing of the new cars. This consisted of a four-page booklet, approximately four inches by five inches, in two colors, orange and black, with a cordial invitation to see and to drive the new De Vaux. This was sent to a carefully selected list of owners of low-priced competitive makes. According to Mr. Stadfeld, the response was most gratifying.

This, in turn, was followed by a single line announcement—"The new De Vaux is here. Come in and see it today"—which was mailed to the same selected list.

The next scheduled direct mail campaign will be directed to women folk exclusively, Mr. Stadfeld says, and will be based upon the question, "Does driving fatigue you?"

All of these sales promotion plans, combined with original publicity stunts, have helped keep the De Vaux before the public in northern New Jersey, and sales of De Vaux cars have been climbing steadily and consistently, Mr. Stadfeld says.

These sales-producing plans have all been worked out within the organization, under the supervision of Bert Jay North, sales promotion manager. Mr. North has been connected with this branch of the automobile industry ever since its inception.

This Dealer Shows Confidence in His Home Town Affairs

Green Bay, Wis., Sept. 21.—Something new in used car sales is being featured by the Brown County Motors of this city in the form of a "confidence sale." Any regularly employed man can buy a car during the sale and if the man is taken sick or loses his job, the motor company suspends payments until he is well or earning money again.

In making the announcement of the sale, the motor company states that it does not believe that there will be any wholesale laying off of Green Bay working men. It is backing up that judgment with a special written agreement that suspends payments for the purchaser in case of sickness or loss of job.

CHICAGO A. T. A. GOLF WINNERS ANNOUNCED

Chicago, Sept. 21.—Prize winners in the golf tournament held in connection with the annual outing of the Chicago Automobile Trade Association at the Crystal Lake Country Club Tuesday were announced today. The event was well attended despite threatening weather and rain during the day and evening. In the absence of President R. G. Tiffany, the dinner winding up the affair in the evening was presided over by Thomas J. Hay, treasurer of the association.

Golfing prizes were awarded to Elmer Rich for the low gross score; to Dan Ganey, R. J. Rich and A. Alexander for the low net; to D. A. Matteson, E. N. Babcock, Marbin Hon, Claude Paw, F. Glasner and H. A. Fletchner for low net in class A; to Gene Silver, A. J. Ruby, C. H. Fargo, Gordon Bird, Al Dampmann, Clark Aubrey, J. B. Burns, Thomas J. Hay, William Arnold, C. E. Gambill and Marshall Allen for low net in class B, and to Charles L. Gerds, James Levy, R. T. Hendrickson, L. C. Morgan, R. Farrow, J. S. Keller, B. F. Schumaker, John Drake, J. Burnside, Arthur Row, W. G. Shirer and Roy Beardsley for low net in class C.

Ability to Change Service Appeal to Meet Conditions Keeps Dealer's Shop Busy

THE ability to change its service appeal to meet existing conditions has been a vital factor in the record of L. W. Shanesy & Co., exclusive North Side Lincoln dealer in Chicago, in keeping its shops busy and building up its service volume. This concern, one of the largest Ford dealers in the city, formerly handled both Ford and Lincoln in the same building, but more recently has erected a four-story structure at 2821-25 Sheffield Ave. for Lincoln sales and service exclusively.

Realizing that wealthy car owners, like all others, would be interested in effecting savings in their service costs, the Shanesy Company has met the situation in a dramatic way by calling into play the bargain style of merchandising. Specifically, the service department announced to Lincoln owners that they could get a $250 to $300 result in refinishing their cars at an expenditure of $67.

"Your Lincoln like new for $67," read the announcement, which continued with this message: "No need to spend $250 to $300 for a new paint job, if your Lincoln is lacquered and you're satisfied with its present color."

At the cost of $67, the following six operations were listed: Painting the chassis, painting the wheels, restriping, dressing the top, refinishing all fenders, aprons and gas tank, and simonizing the body. It was explained that this service would give the car virtually the appearance it had when new.

"The $67 offer idea had the desired effect in increasing our service volume," declared V. E. Ruth, service superintendent. "It brought in plenty of business and proved to our satisfaction that owners these days, regardless of the size of their pocketbooks, are interested in saving money, particularly when the result means making their cars look like new."

In another important way the the Shanesy service organization has studied human nature, so far as its type of owners is concerned.

"We have come to realize that nothing displeases our owners more than having their cars tied up unduly long," said Mr. Ruth. "As a consequence, we have developed a method that obviates such unpleasantness. For instance, in case of carburetor, generator or starter troubles we have the units on hand for immediate installation, and the same thing applies to wheels, speedometers, clocks, shock absorbers and other parts. Our stock of parts has been increased and is now unusually large for purposes of saving the owner's time. We always have enough on hand for ordinary repairs or for cars that have been damaged."

The company gives owners four months or 5,000 miles of free service, whichever may come first, during which time all adjustments and repairs are made, as well as replacements not due to neglect, abuse or damage. Owners are instructed to bring their cars in every 750 miles for lubrication and check-up.

As to the volume of service this year, Mr. Ruth stated that it is running even with the same period in 1930 in the number of cars handled. In its contacts with owners, the company stresses the advantages of getting complete service under one roof, with only one profit, no outsiders to be paid, and consequent economy to the user in both price and time.

Literature, letters and phone calls keep the Shanesy company in contact with its entire list of some 2,200 Lincoln owners in its territory, 1,875 of whom are its regular customers. The average number of jobs handled a day is sixty cars, but the service station is equipped to take care of its peak capacity of ninety-five automobiles in a day.

"We are especially insistent upon rendering service that will give complete satisfaction, for every man in our shops knows that this is the surest way of keeping owners coming to us, whether for service on their old cars or the purchase of new automobiles," explained Mr. Ruth. "We follow the owners of cars recently in for service and those who have not put in an appearance over a ninety-day period. In addition, each tester calls customers on the ordinary brought them in for the phone in case something out of service."

NEW WELDING CONCERN FORMED IN SYRACUSE

Syracuse, N. Y., Sept. 21. — The Betts Welding & Supply Company has been organized here by James Betts and John Nelson. The new concern has acquired a building at 424 South West St., in which machinery and equipment is to be installed for electric and acetylene welding. The company will specialize in custom automotive work for garages and service stations in the central New York area. John Nelson is general manager.

STRENGTH

Imagine a "bump test" which "bottomed" both axles of your car a million times, and you have some idea of the test which USL Batteries must be able to pass before we are satisfied with their strength. The ruggedness of USL Batteries is one of the many good reasons for their choice as equipment by leading car manufacturers.

USL BATTERY CORPORATION
Niagara Falls, New York
Other USL factories at Oakland, California; Toronto, Canada; Sydney, Australia; Manchester, England; Paris, France.

USL BATTERIES
Long Life
Dependable Power

A VERY striking proof of the desirability of the Willys-Overland franchise is the inspiring way in which the dealer organization has stood together over a long period of years. There are many dealers who have handled Willys-Overland products for ten, fifteen and twenty years.

Write or wire for franchise particulars

Willys-Overland, Inc., Toledo, O. Willys-Overland, Ltd., Toronto, Can.

WILLYS

A BIG SIX priced like a four
A POWERFUL EIGHT . . .
A BRILLIANT KNIGHT . . .
2 NEW WILLYS TRUCKS

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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TUESDAY, SEPTEMBER 22, 1931

ADVERTISING AND BUSINESS HEADQUARTERS

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Supply and Demand and Service

THROUGHOUT considerable sections of this country Wall Street is looked upon as a parasite on the business structure of the country, reaping without sowing and making money without constructive effort.

It is not our purpose here to discuss this idea of the center of the securities markets of the country, but we do want to quote briefly some extremely sane observations made recently by Richard Whitney, president of the New York Stock Exchange, high priest, so to speak, of Wall Street. Mr. Whitney said: "If we are to speed the ending of depression and to recover prosperity which will last we must not conceal or hinder the free and open expression of the forces of supply and demand in our market places. There has been, I feel, too much subterfuge in this regard and too little frankness. It is futile to maintain nominal prices and secretly engage in price cutting; to hold up nominal rents and then nullify them by granting large concessions of free occupancy, to keep up a wage scale that looks high on paper and at the same time to lay off the help half of each week. In the long run such subterfuges deceive nobody and are only a hindrance to readjusting our prices to levels which will move goods, permit employment and bring back prosperity."

Mr. Whitney does not suggest that there are no steps to be taken to assist revival of business. There are many things that we can do to help, work harder being one of the most efficacious. But the danger lies in attempted application of remedies or "cures" that ignore the fundamental law of supply and demand that lies under the whole fabric of of business.

To our readers in the dealer field we may suggest a method of helping revival that certainly conforms to the fundamental law. It is perfectly obvious that many cars today are being run longer than would normally be the case. Gasoline sales, which stand at new high levels, prove that these cars are being used. The answer to that equation is that more owners need service now than ever before. The dealer who goes out and fights for service business, creates it, drags it into his shop by the ears is taking advantage of the law of supply and demand in his own field. There is nothing else quite so constructive at the present time in the dealer field as a concentrated and continuous drive for service business.

Co-operation and Protection

AS we suggested in a previous editorial, Gerard Swope's speech outlining his plan for the stabilization of industry has received a tremendous amount of comment, most of it favorable. This frank statement by a leader of industry, placing before the country ideas that would have been called "socialistic" a few years ago, was like a fresh breeze blowing into a close room.

Perhaps the section of Mr. Swope's speech that received the greatest amount of comment was embodying his ideas on the protection of labor from the hazards of old age and of unemployment.

As we see it, this accomplishment would be the effect rather than the cause of Mr. Swope's plan. To give labor protection, industry has got first to be placed in a position where it can act. Present laws prevent any very effective co-operation among companies in the same industry. These must watch their steps carefully or a Federal penitentiary will yawn for their officials. Mr. Swope would produce the closest co-operation among all concerns in the same industry under Federal supervision, designed simply as a check on attempts at monopoly, price manipulation and attendant ills. With companies in the same line of industry able to co-operate to regulate production and distribution, economies could be put into effect such as we can scarcely conceive. From business placed on such a basis there could come protection for the worker which is impossible today.

CLOSER CONTACTS BY LUMBER AND CAR PLANTS URGED

(Continued from Page 1)

Lumber Association at their 34th annual meeting here, following an appeal by John I. Shafer, South Bend, Ind., president of the association.

Addressing members of the organization, Mr. Shafer called attention to the fact that it is more difficult today than ever before to control inventories because of sudden changes of requirements in the automobile industry. Instances of this sort, he added, multiply the troubles of the sawmill men and as a result are unsatisfactory to the body manufacturer as well. He urged a mutual appreciation of the problems thus presented on the part of both body makers and lumber producers.

Mr. Shafer expressed the opinion that the worst of the depression is over and that business and industry are ready for an upturn. The statistical position of the hardwood industry, he declared, is better than it was a year ago, with sales exceeding production and reserve stocks in consumer's plants exceptionally light. In consequence, he said that business pick-up is certain to be reflected quickly in heavier sales of lumber and a much more active demand for all forest products.

At the closing session, Mr. Shafer was re-elected president of the association. By a vote of 100 to 50 the convention also passed the new set of rules for inspection and grading of lunmber, as presented by a committee appointed to draw them.

Soviet Russia threatens real competition for American hardwood lumber manufacturers, according to Carl W. Bahr, a member of the association, who delivered a report based on his trip to Europe and study of the situation. Mr. Bahr pointed out that Russia has already become a factor in the softwood lumber market. He stated that the atractive markets in the United States for hardwood lumber along the Atlantic and Pacific coasts will not be overlooked when and as the Russian hardwood industry develops.

COMING EVENTS

SEPTEMBER

21-25—**Boston, Mass.** American Welding Society, meeting. The following societies will participate: American Society for Steel Treating, American Welding Society, Iron and Steel Division, A. S. M. E.; Machine Shop Practice Division, A. S. M. E.; Iron and Steel Division, A. I. M. E.; Institute of Metals, A. I. M. E.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting. Hotel Ambassador.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting.
7- 8—**Detroit, Mich.** Society of Automotive Engineers, national production meeting.
12-13—**Pittsburgh, Pa.** Pennsylvania Automotive Trades Association, convention.
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
14-15—**Albany, N. Y.** New York Automobile Dealers Association, convention.
15-17—**Pittsburgh, Pa.** American Gear Manufacturers Association, convention.
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
19-22—**Chicago, Ill.** National Hardware Association, convention.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.
23—**New York City.** American Iron and Steel Institute, convention.
27-28—**Chicago, Ill.** American Railway Association, Motor Transport Division, meeting.

NOVEMBER

5-14—**London, England.** International Commercial Motor Transport Exhibition, Olympia Hall.
10-12—**Chicago, Ill.** American Petroleum Institute, annual meeting, Hotel Stevens.
28-Dec. 9—**Brussels, Belgium.** Automobile Salon.
29-Dec. 5—**New York, N. Y.** Automobile Salon, Hotel Commodore.
30-Dec. 4—**New York City.** American Society of Mechanical Engineers, annual meeting.

DECEMBER

7-12—**Atlantic City, N. J. Motor and Equipment Association and National Standard Parts Association, Joint Trade Show.**
9-11—**Atlantic City, N. J.** American Institute of Chemical Engineers, meeting.

JANUARY

11-14—**Detroit, Mich.** American Road Builders Association, twenty-ninth convention and show.
9-16—**New York City, National Automobile Chamber of Commerce, National Automobile Show.**
9-17—**Los Angeles.** Annual Automobile Show of the Los Angeles Motor Car Dealers Association.
23-30—**Minneapolis.** Annual Automobile Show of Minneapolis Automobile Trade Association.
30-Feb. 6—**Chicago, Ill. National Automobile Chamber of Commerce, National Automobile Show.**
30-Feb. 6—**Chicago, Ill. Automobile Salon, Hotel Drake.**

FEBRUARY

13-20—**Los Angeles, Cal.** Automobile Salon, Hotel Biltmore.
22-March 5—**San Francisco, Cal.** Automobile Salon, Palace Hotel.

TRANSPORT ASSOCIATES TO FIGHT PROPOSED TRUCK LEGISLATION

Springfield, Mass., Sept. 21.—A committee of the Transport Associates of the Chamber of Commerce, meeting in Chamber of Commerce rooms, discussed plans for the coming year and determined upon a concentrated effort to draw out as large a number of truckers as possible to present their strenuous objections to the proposed legislative bill regulating trucking which will be given a public hearing in this city September 26.

There was no discussion at the meeting of the proposed local ordinances restricting trucking in some streets of this city and eliminating it in others.

One of the first events on the program for the coming year will be a supper to be held the second week of October with speakers from the National Automobile Chamber of Commerce and some representative of motor truck manufacturers.

Special attention was given to the motor transportation problem with the visit to this city of State Senator William H. Vanderbilt of Rhode Island, president of the Coastal Transit Company and interest in the Short Line and a group of other trucking officials. Those accompanying Mr. Vanderbilt included C. M. Sears, vice-president and treasurer; T. J. Scarr, executive vice-president, and Robert H. Newcomb, general traffic manager.

HANCH PREDICTS STARTLING VALUES IN CARS FOR 1932

(Continued from Page 1)

Mr. Hanch believes will tend to place the coming cars far in advance of those made in past years are:

1. Radical transmission changes.
2. Body designs which lessen wind resistance.
3. The increased use of non-shatter glass in all windows.
4. Vibrationless mounting for motors, improved vibration dampeners and better spring suspension, all making for greater riding comfort.

Mr. Hanch, who was formerly chairman of the patent committee of the National Automobile Chamber of Commerce, predicted enough improvement would be made in the 1932 automobiles to imbue the motoring public with a great desire for new cars. This urge will be particularly strong with those who would normally have bought new cars in 1930 and 1931, but did not because of the depression psychology.

"Finance companies believe next year will be as great a year for the sale of new cars as 1931 has been for the sale of used cars," said Mr. Hanch.

FORM TIMKEN-MICHIGAN CONCERN TO MAKE VALVES

Detroit, Sept. 21.—Announcement is made here of the formation of the Timkem-Michigan Company, which will manufacture and sell a complete line of lubricated and non-lubricated plug valves, and leak clamps for the use on cast-iron and spigot pipe.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Style is quite as vital and important a factor in motor car wheels as in any other phase of human endeavor.

And if you would know just what is the latest mode—what is in fact à la mode—just watch the current Kelsey-Hayes models — the style arbiters of the industry.

Credit Conditions Found Satisfactory in First Half

WASHINGTON, Sept. 21.—Current obligations in the form of open credit and installment accounts continued to be paid in orderly manner during the January-June period of the current year, while new obligations were assumed in the same proportion to cash sales as formerly, according to the third semi-annual retail credit survey made public today by the Department of Commerce.

The facts set forth in this report, based on returns received from 483 retail establishments, in twenty-five cities, representing seven lines of retail business, show that current obligations in the form of open credit and installment accounts continued to be paid in an orderly manner and new ones assumed in the same proportion to cash sales as formerly.

The semi-annual retail credit surveys are conducted every January and July by the Department of Commerce at the request and with the co-operation of the National Retail Credit Association and its affiliated credit bureaus in representative cities throughout the country. The results of these surveys act as a chart or guide to the merchant and his credit manager, enabling them to compare their own figures with those of others operating under similar conditions. They are also of value to all those who are interested in retail credit conditions as a whole and trends in changing conditions.

The current study contains reports from 483 retail establishments, including 104 department stores, 75 furniture stores, 51 jewelry stores, 92 men's clothing stores, 51 shoe stores, 81 women's specialty stores and 29 electrical appliance stores, located in 25 cities, with total net sales of over half a billion dollars for the first six months in 1931, showing that net sales decreased 8.7 per cent. in comparison with those for the corresponding period of 1930.

The report reveals that the changes in the proportions of total sales on cash, open credit (regular charge account) and installment (deferred payment) basis during the period studied were very small. Cash sales increased from 43.4 per cent. of total sales to 45 per cent.; open credit sales decreased from 45.9 per cent. to 44.9 per cent., and installment sales decreased from 10.7 per cent. to 10 per cent.

Returns and allowances (including repossessions on installment sales) for the 348 stores reporting were 10.4 per cent. of gross sales for the first six months of 1930 and 10.2 per cent. for the same period in 1931. Returns and allowances decreased slightly on all types of sales —cash, open credit and installment.

The open-account collection percentage for all stores for January-June, 1930, was 41.7 per cent. and for 1931 39.6 per cent. Installment account collection percentage for all stores January-June, 1930, was 15.4 per cent. and for 1931 15.1 per cent.

USED CAR DEALERS A SMALL FACTOR IN SETTING OF PRICES

(Continued from Page 1)

mobile dealers who did $3,797,768,653 worth of sales. In these same states there were 1,928 exclusive used car dealers who did $31,532,813 total sales. In these same states, total retail sales to the population were $33,066,040,574. Of this total $6,506,213,145, or 19.67 per cent. were spent for automotive products. Of the total spent in the automotive industry, 58.371 per cent. was spent with franchised car dealers, 1.251 per cent. with exclusive used car dealers, and the remaining $2,627,111,679, or 40.378 per cent. with independent garages, filling stations, repaird shops, and the like.

"It is ostensible that the exclusive used car dealer, who in the main is providing the nearest thing to a cash market that exists in the used car field, is not dominating buying and selling prices in a field where he handles only on forty-seventh of the volume done. It might be vastly helpful to the automobile trade if the used car field were more plentifully supplied with independent used car operators, enough to dominate the bid and ask market for second-hand vehicles.

"If used car allowances were determined by the cash bid, instead of the trade-in hallucinations of new car dealers, a $300 jalloppi would come into stock on a $1,000 Sennett at $300, and come into stock on a $3,000, Rolong at $300, instead of into the Sennett dealers' stock at $550, because Sennett had a $250 new car gross, and into the Rolong dealers' place at $1,200, because Rolong had a 30 per cent. discount.

"When factories start their own retailing outlets it will come in at $300, regardless of the new car discount."

LINK-BELT EMPLOYES HOLD GOLF TOURNEY

Chicago, Sept. 21.—The employees of Link-Belt Company and H. W. Caldwell & Son Company, of Chicago held their annual golf tournament at Cog-Hill course near Chicago.

TOM DUGGAN JOINS THOMPSON PRODUCTS; MERCHANDISING CHIEF

(Continued from Page 1)

man, by conducting dealer clinics, doing constructive educational work, and personally aiding repairmen with their problems.

This service will be continued with Thompson. In addition to acting as merchandising director, Duggan will also supervise Thompson sales in the Cleveland, New York city and Atlanta territories. One of his first activities will be introducing the new Thompson copper-cooled valve.

Starting his career in the industry in 1910. Duggan has been a mechanic, race driver, jobber salesmanager and merchandising service director. He also served as a pilot in the Army Air Corps during the war. During the past two years he has addressed more than 62,000 repairmen in all sections of the country.

The acquisition of Duggan is part of an extensive expansion program of Thompson Products in the replacement field, which will involve closer relationships with jobbers and the conduct of jobber sales conferences and dealer clinics.

Akron Tire Plants Keeping Employees by Cutting Hours

AKRON, O., Sept. 21.—Reports from the rubber companies, including the Goodyear Tire and Rubber Company, B. F. Goodrich Company, Firestone Tire and Rubber Company, General Tire and Rubber Company, Seiberling Rubber Company, Mohawk Rubber Company and India Tire and Rubber Company, indicate that even though a twenty-four week may be adopted, this will be done before any help is laid off.

The larger companies are now operating on a basis of thirty to thirty-six hours per week per employee with four shifts a day, and with the indication that these will be cut prior to lay-offs, it seems certain that the industry in Akron will be stabilized for the fall and winter months.

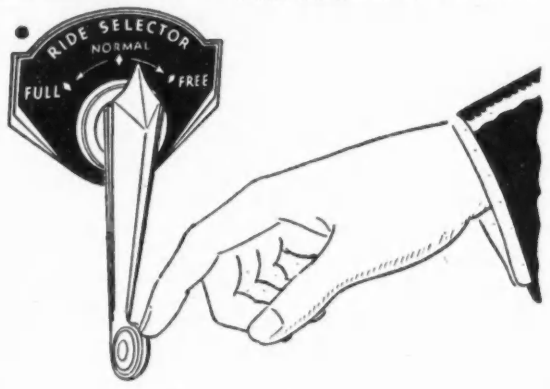
The Goodyear Tire and Rubber Company office and salaried employees will take two weeks vacation without pay between October 1 and February 1 as part of the plan to prevent lay offs, according to P. W. Litchfield, president of the company.

"The paralyzing device of the dole is the alternative." Litchfield said in explaining that "the only cure for unemployment is to find work for more men by shortening the hours. Since there are not enough jobs to go around, we must spread the jobs there are out, so as to put as large a number of men as possible in an earning position.

"The easiest thing for a corporation to do under these circumstances is to lay men off in proportion to the work to be done. From the standpoint of the men retained that, too, would seem the best thing, but there is no security for the individual or the corporation under these conditions.

"If some men are earning full wages and many others nothing at all, we may be quite sure that the men now working will soon have to draw against their wages through taxation or otherwise to support those who are unemployed."

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS



THE NEW
MONROE
RIDE SELECTOR

•

Even with one passenger the car rides as comfortably as with a capacity load

An important advantage of the new Monroe Ride Selector is that it functions with equal effectiveness whether the car be carrying only one passenger or a full load.

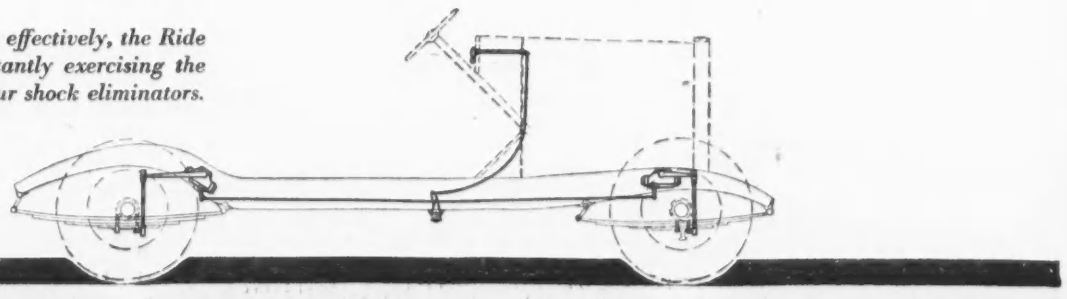
Simple to operate. The Selector lever is on the dash, within easy reach. A touch of the finger gives you the full play of the car's springs on well paved highways, or sets all four hydraulic eliminators to meet the hardest shocks of a bumpy road. And note the lack of side sway or body weaving.

Today, riding comfort is one of the most decisive factors in automobile sales. This new Ride Selector is so revolutionary an advance that no car without it can be strictly up-to-date.

We will gladly install the Monroe Ride Selector on your test cars. Test it thoroughly—and you will be certain to appreciate the sales possibilities of this distinctive feature. The Monroe Auto Equipment Company, Monroe, Michigan.

M O N R O E
RIDE SELECTOR

Showing how simply, yet effectively, the Ride Selector functions—instantly exercising the proper control on all four shock eliminators.



Production -- Engineering -- Factory -

Truck Power Brakes and Their Application

By F. B. WILLIS
(General Sales Manager Bragg-Kliesrath Corporation)

HEAVIER trucks, heavier trailers and higher road speeds have combined to bring about an imperative need for the most efficient braking mechanisms that engineers can develop. This need has been pointedly emphasized by passage of laws in numerous states compelling the use of power brakes, and in those states which have not formulated such laws truck operators are demanding efficient brake equipment from the safety standpoint.

Any braking system consists of two elements—the brake itself and the method by which force is applied to operate it. The brake assembly has been brought to a high degree of efficiency. The newer motor vehicles have four-wheel brakes, and brake shoes and drums have reached the limit in size—the limit of area of friction surfaces. Likewise, the human leg has reached its limit of power in stopping huge trucks and trailer trains moving at high speeds.

Hench, power brakes were developed.

Engineers see the power brake as one of the important factors if today's fast road schedules are to be maintained or increased. The demand is being made constantly for greater speed and bigger loads, but it must be speed with safety. When a driver knows he does not need to continually reduce speed in anticipation of possible stops, a considerably higher average speed can be maintained.

To the truck operator this means more revenue with greater safety and lower maintenance cost. To the public it means safety.

A certain inconsistency is shown by some truck manufacturers and by many truck operators. The tendency is to build trucks so they will carry perhaps twice the load at which they are rated. As a result, the operators are prone to overload their trucks. Yet at the same time no adequate provision is made for a braking system to take care of this overload. Undoubtedly the day is rapidly approaching when no truck or trailer will be placed on the market unless it is equipped with power brakes.

Power brakes can be separated into two major classes: Vacuum and compressed air. Both have been in use for years and their efficiency has been thoroughly proven.

The most generally used vacuum brake installation is the B-K vacuum brake booster, made by a subsidiary of the Bendix Aviation Corporation. This device utilizes the vacuum created in the engine's intake manifold. One-third the foot pressur on the brake pedal creates twice as much breaking power at the wheels than if the brake booster were not used.

This vacuum booster can be installed on any brake system, and it comes as standard equipment on many models of trucks and buses. It is extremely simple, consisting merely of an operating valve controlled by the brake pedal and a vacuum cylinder in which a piston moves.

The most generally used brake booster for heavy duty installations is known as the "vacuum suspended" type. These boosters are used on heavy duty trucks and buses and for trailer operation, with either one, two or three trailers or semi-trailers. More than a dozen combinations exist, in order to give the truck operator exactly what his requirements demand.

In the vacuum suspended type vacuum is present on both sides of the piston in the vacuum cylinder at all times when the motor is running. Among the advantages of this type is that there is no size limit, and no air rushes into the manifold to affect carburetion at the moment of brake application. When the vacuum suspended type is used with a check valve enough vacuum is retained, if the motor should stall, so it is possible to make at least two applications of the brakes.

When the brake pedal is depressed the piston moves forward in the vacuum cylinder, applying the brakes smoothly and positively.

Another brake booster feature is that the original brakes are left intact, and, should the motor which supplies the vacuum fail, the original breaking system is still operative. Because there are no moving parts when the brake is not in operation, there is practically no maintenance cost on the vacuum brake booster.

The flexibility of the B-K vacuum system lends itself remarkably well to tractor and trailer installation. Practically any desired combination can be obtained. Brake boosters on both tractor and trailer can be operated by an external valve in the brake pedal line, so that power-braking can be obtained on both vehicles by application of the tractor brake pedal.

Another combination provides operation of power brakes on trailer only by foot pedal operation, or, if desired, trailer application can be controlled by a hand-controlled valve mounted on the steering column of the tractor. With this combination, independent trailer braking may be obtained without disturbing tractor braking. This combination seems to be most popular with operators of heavy trailer equipment.

In order to provide simultaneous and instantaneous braking power on all units of a trailer train, the B-K brake booster is equipped with a "relay valve." This reduces to a minimum the amount of time elapsing between the moment when the driver depresses his brake pedal and the moment the brakes take hold. Until development of the relay valve, this time problem was a serious factor, because two or three seconds might be required for the air to pass through the air lines to the trailer brakes, and the train at high speed might travel 200 feet or more before the brakes took hold. The B-K relay valve has made brake application practically instantaneous on all units of the trailer train.

With the air brake on motor vehicles, the brakes are applied by compressed air acting in brake chambers controlled by a foot or lever-operated brake valve.

The major parts of an air brake system consist of a compressor driven directly from the crank shaft of the motor or one of its auxiliary shafts; a suction strainer connected to the intake port of the compressor to remove foreign matter from the air; a reservoir which receives the

(Continued on Page 7)

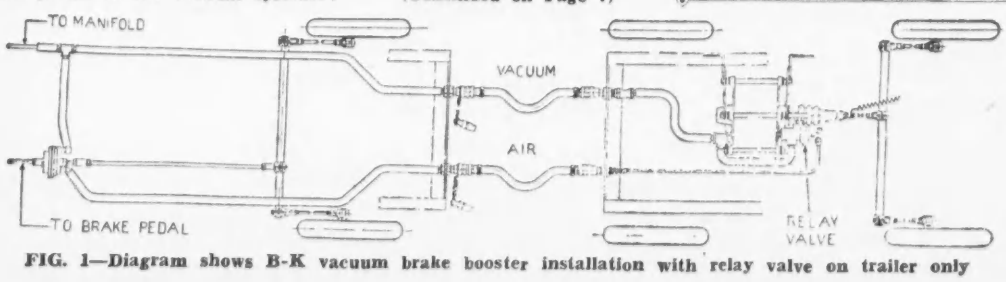
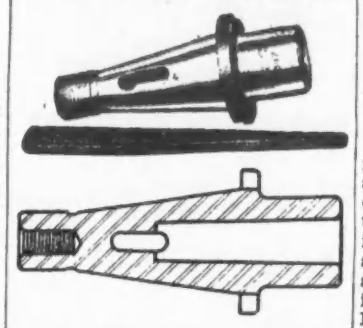


FIG. 1—Diagram shows B-K vacuum brake booster installation with relay valve on trailer only

NEW CUTTER ADAPTERS BY BROWN & SHARPE



The Brown & Sharpe Manufacturing Company of Providence, R. I., has recently announced new cutter adapters for use with milling machines having standardized spindle end with No. 40 taper, to accommodate end mills, collets, etc., having No. 3 Morse, and Nos. 7 and 9 Brown & Sharpe taper shanks.

While, at the present time, there are few milling machines with No. 40 milling machine standard taper end, these adapters anticipate present plans of machine tool manufacturers to incorporate this taper in machines of small sizes.

These adapters will find a wide range of usefulness, particularly among manufacturers who may have milling machines having standardized spindle end, who may wish to use end mills, collets and other tools having the Morse and Brown & Sharpe tapers mentioned above.

BUDD SNAP SPOKES TO BE SOLD ABROAD

New York, Sept. 21.—First introduced in the United States early this year, the new Budd stainless steel snap spokes are now finding a widespread acceptance in foreign fields. Foreign distributors are being appointed, and this product will shortly be available to motorists in the leading countries of the world.

The Budd snap spoke is made of stainless steel. It fits over the regular metal spoke of the wire automobile wheel.

STOUGHTON CO. ENTERS TRUCK EQUIPMENT FIELD

Stoughton, Wis., Sept. 21.—That the Stoughton Company, maker of wagons and commercial truck bodies, will now engage in trailer and truck equipment manufacture has just been announced by F. J. Vea, president. Coincidental with this statement, Mr. Vea announced that Charles R. Jahn, formerly sales manager of the Highway Trailer Company, has been appointed general manager of the newly formed division of the company.

A standard line of trailers, embodying several new and exclusive features in design and construction, present advanced ideas in the transportation field, and a new standardization of models will be announced later by the company.

DUCO NO. 7 LINE SALES GAIN 14% IN AUGUST

Wilmington, Del., Sept. 21.—The automotive finishes division of the Du Pont Company reports that the August sales of No. 7 line were the largest in any month this year. Reports indicate that they were 14 per cent. greater than for the same month last year. This line includes the new speed Blend duco polish touch-up black, radiatorw cleaner, nickel polish and top finish.

Tool Steel From the Consumer's Standpoint

By H. G. KESHIAN
Metallurgist for the Chase Companies, Inc., Waterbury, Conn.

(This paper discusses the existing methods of selecting tool steels. The author advocates that the properties of tool steels such as wearing, fatigue, impact, non-changing, shrinking, heat resisting and other characteristics, be accurately determined and made available to the consumer in definite and numerical values. It was presented today at the first technical session of the A. S. S. T. in Boston.

To the engineer or technical man the thought of metals presents a different picture than it does to the layman. The average man ordinarily thinks of metals either as to their general properties or by their mere names. For instance, iron or steel, copper or brass, aluminum or zinc, means to him metals that are hard or soft, white or red, malleable or brittle; while the selection of metals for his various needs is generally controlled by what others have been using or custom dictates.

The true engineer or the technical man, however, will generally think of metals in terms of their definite chemical or physical properties, and the work of selection means to him a mental process of scanning or scrutinizing the properties under consideration. These may be physical strength, ability to conduct heat or electricity, chemical or structural stability under certain conditions, resistance to shock, wear or corrosion, adaptability to hot or cold work, etc. In other words, the name, chemical composition or structural state of a metal is only important to him in so far as it indicates certain definite quanititative properties.

Now, what does tool steel mean to the average consumer? In the selection of tool steel does he evaluate the different kinds of steel in terms of their specific properties or by their mere names? While there are considerable amounts of data at present relative to the different properties of steel and a respectable number of engineers and technical men constantly endeavoring to apply this knowledge to a multitude of demands of modern life, obviously it rarely occurs that the choice of tool steel is made on a definite and quantitative knowledge of the properties of tool steels.

Many mechanical and structural engineers and architects have at their command valuable data pertaining to the physical and chemical properties of a variety of structural, heat and acid resisting, and so-called automobile and aircraft steels, from which they can select the material possessing the right kind and amount of property for which they are looking; but to the user of tool steel such valuable quantatative data are sadly lacking. Terms, such as "keen cutting edge," "toughness," "high wearing property," "freedom from excessive warpage," "resistance to shock or impact in high degree," etc., at best are mere conventional phrases to describe certain physical properties and are devoid of any definite quantitative data. They are not only insufficient to guide the tool designer in his efforts to select proper steel, but also frequently confusing. The present status of selecting tool steel and a necessity for improvement can better be realized by considering the existing methods in general use.

Generally speaking, steels for various tools are selected, at present, according to (1) tradition, (2) personal experience, (3) recommendation of steel makers, (4) service test.

In the traditional method the mechanic or the engineer chooses the steel according to the established custom or specifications of the plant where he is employed. In fact, he has no choice in the matter and so far as he is concerned, neither the kind nor the physical properties of the material enter into the picture. Even the reasons for using one type or brand of tool steel in preference to others may not always be clear to him, so a definite knowledge of the necessary physical properties of the steel does not play a determining part in this method of selecting tool steel.

In the second method of selecting tool steel decision is rendered by the personal experience of the engineer or mechanic with various kinds of steels on the market. His experience tells him that certain types or brands are to be preferred to others.

It is true that in both these methods the preferential list of tool steels may have been based on so-called service tests. It is commonly known, however, to both steel makers and the steel users that very often a steel which may be considered a "top notcher" in one plant does not enjoy even third class position in another plant for a similar class of tools. Futhermore, the same type or brand of steel is quite often differently valued by different engineers or mechanics for similar operations in the same plant.

So it is obvious that neither of the two methods mentioned is satisfactory as a means of truly evaluating the fitness of any type of steel for a given purpose. We all know that these divergencies of opinion on the relative merits of tool steels have always exisisted, and still do exist. We also know that many reasons and explanations have been offered, but the primary reason appears to be the fact that very rarely are the absolute physical properties of the steel measured in definite, quantitative and comparable manner as a basis for the opinions held.

The third method of selecting tool steel is based on the recommendation of the steel maker. He makes the steel and it is presumed he ought to know what characteristic properties his material possesses, therefore, he is the one that is in a position to tell for what purpose his products are best suited. Among the many sources containing steel makers' recommendations regarding the choice of tool steels, the catalogues published by various steel companies are most frequently used. It is quite in order, therefore, to inquire into and see to what extent these recommendations properly guide the tool engineer or the mechanic in selecting the right steel for a given job. Perhaps a good way to pursue this inquiry is to quote some of the recommendations from the catalogues of several outstanding foreign and domestic steel companies. Let us assume that we have the problem of selecting steel for cold heading dies. If we turn to these catalogues for information on header die steel we find the following:

Steel company A says this: "Our various grades of die steel are designed for severe usage and record breaking service, from the initial stage of manufacture and throughout each succeeding step, every department through which the steel passes, and every workman who helps to complete it understands full well that quality must characterize the steel. For heading dies we recommend our X steel to the user who demands the highest possible service and efficiency. Extreme care is used in the manufacture of these steels, the aim being to have them thoroughly homogeneous and relieved from internal strains. Heading die steel is supplied in rounds, squares, flats and special sections."

Steel company B says this: "This particular temper deserves special mention because it has held for years, and continues to hold, an enviable place in the esteem of users of cold work steel. It is securely intrenched in its position for certain types of header and forming dies and we remommend it with confidence as a dependable high-

(Continued on Page 10)

Equipment - - - Development

Power Brakes Help Solve Truck Trailer Problem

(Continued from Page 6)

air from the compressor and stores it for use. A governor regulates the reservoir pressure and a safety valve prevents excessive pressure.

The brakes are operated by pressure on the brake valve with the foot or the movement of a lever. This directs the flow of air from the reservoir to a brake chamber on each wheel, where the air is converted into mechanical energy to apply the brakes. A quick release valve assists the brake valve by exhausting the front brake chambers to produce speedy and simultaneous release on all wheels. Of course, an adequate supply of compressed air must always be present to insure operation of the brake system.

When a truck is equipped to handle trailers, the air lines are extended to the rear frame of the truck or tractor, where they end in rigidly mounted couplings. These are closed when the truck is operated alone, but when trailers are hauled a connection with the trailer brakes is made through the couplings.

The power and speed with which air brakes can be applied depends on the distance the brake valve pedal or lever is moved. To make a light application for a gradual stop, only a slight movement of the valve is required. Further movement provides heavier and quicker brake application. There are several factors entering into proper application of air brakes, but any driver soon learns to operate them as a matter of unconscious judgment.

Maintenance costs are always uppermost in a truck owner's mind. Figures compiled by manufacturers show that both general types of power brakes discussed here appreciably reduce maintenance costs through elimination of accidents, undue wear on brake mechanisms and lower insurance premiums. In fact, power brakes are the engineers' answer to the demand for efficient, positive and economical brake operation.

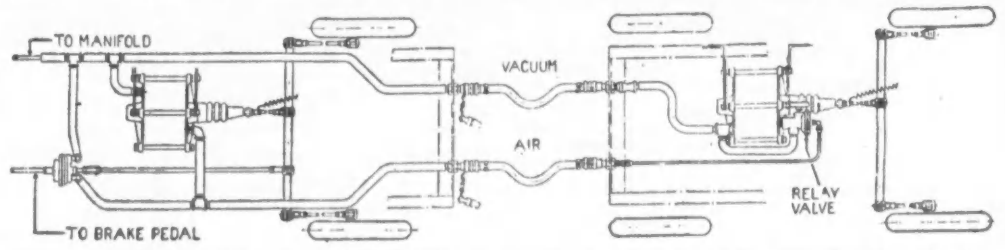


FIG. 2—Conventional relay installation on both tractor and trailer using B-K vacuum brake booster booster.

FRANK S. SPRING NAMED ENGINEERING STYLIST FOR HUDSON AND ESSEX

Detroit, Sept. 21.—Frank S. Spring, for years recognized as one of the leading automobile designers, both in this country and in Europe and credited, more than any other one person, with having established present-day automobile styles, has been appointed engineering stylist for Hudson-Essex auotmobiles.

F. S. Spring

This announcement, made public by S. G. Baits, chief engineer of the Hudson Motor Car Company, revealed that Spring joined the Hudson organization six months ago, and that he will be largely responsible for the surprise of design in the 1932 Hudson-Essex cars which will be displayed at the forthcoming automobile shows.

In recent years Spring has designed and built special de luxe bodies for automobiles for King Alphonso of Spain, Mayor "Jimmy" Walker of New York city, Elizabeth Arden, Roger Wolfe Kahn, Mary Pickford, Roxy, Tom Mix, Barney Oldfield, Pauline Frederick, Conrad Nagel, Douglas Fairbanks, A. H. Chapin, Sally O'Neil and other notables.

Spring has designed automobile bodies for many of the leading automobile manufacturers of this country and Europe during the past ten years.

IN NEW QUARTERS

Tampa, Fla., Sept. 21.—The new car department of A. T. Remilen, Chrysler and Plymouth distributor, is now located at Tampa and Jackson Streets. The used car department will still be maintained at Madison and Marion Streets, according to Mr. Remilen.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

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There is a pride in Hupmobile ownership which lies not in its price of today or tomorrow, but in its performance through the years . . . Enduring mechanical excellence has been Hupmobile's "unwritten trade mark" for twenty-three years. And no price tag will ever change this zealously guarded policy.

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"WE BELIEVE THE HUPMOBILE TO BE THE BEST CAR OF ITS CLASS IN THE WORLD"

New Dealers Appointed

NORTH CAROLINA

Graham-Paige—L. D. Marshburn Motor Company, Inc. (distributor), Wilmington.

Studebaker—O. Ward, Hobbsville.

NORTH DAKOTA

Graham-Paige—Red River Valley Motor Company, Inc. (distributor), Fargo.

Studebaker — Cummings Motor Service, Carrington.

MISSOURI

Studebaker — Sewell Auto Company, Maryville.

Reo—Walter Perry Motor Company, Monett; Ozark Motor Company, Aurora; E. C. Williams, Noel; Hunter Motor Company, Mount Vernon; Phillips & Ralph, Memphis.

MONTANA

Graham-Paige—Boat Service (distributor), Helena.

NEBRASKA

Studebaker—C. A. Larimore, Stella.

Reo—A. F. Schwartz, Hildreth.

NEW HAMPSHIRE

Studebaker — Perley F. Safford, Keene.

Auburn — Northern Automobile Company, Inc., Berlin; A. P. French, Concord.

NEW JERSEY

Reo—Cottrell's Garage, Hightstown; Bennett's Garage, Spotswood; Mori-Holland Motor Company, Inc., Camden; Kramer Motor Company, Bayonne.

NEW YORK

Studebaker — Bowen's Garage, Whitney Point; Crandall's Garage, South Otselic; Brookhaven Auto Sales, Inc., Port Jefferson; Van-Parrott Motor Company, Poughkeepsie; French Motors, Bainbridge; Charles T. Minch, Scarsdale.

Auburn—Delaware Motor Company, Walton; Blake-Bachelet, Inc., New Rochelle; Mangon Motors, New York; Peekskill-Rizzuto Sales Company, Peekskill; Cobleskill Garage Company, Cobleskill.

Reo—M. L. Mooney & Son, Hudson Falls; William Pase, Inc., Huntington; Jackson's Garage, Odessa; Willard Racine & Hamilton Brothers, Port Jervis.

OHIO

Graham-Paige — W. D. Tschanen, Sycamore.

Auburn—Washington Motor Sales, Washington Court House.

Studebaker—Charles E. Knapp, Chadron.

Reo—Oyster's Garage, Louisville; The West Side Motor Company, Middletown; The Kilpatrick-French Motor Car Company, Lebanon; The Kilpatrick-French Motor Car Company, Blanchester; The Kilpatrick-French Motor Car Company, Mason; The Kilpatrick-French Motor Car Company, Waynesville; Chester Allen, Sabina; Turner Motor Company, Wilmington; Henry Sullivan, Tuscarawas; The Sweitzer Motor Company, Dover; Knox Garage Company, Carrollton; Pennell Auburn Company, Van Wert; Waynesburg Carriage Company, Waynesburg; F. W. Mansfield, Defiance; F. W. Mansfield, Toledo; McNeer Nash Company, Portsmouth.

OKLAHOMA

Studebaker—Starzer Motor Company, Norman; Okmulgee Motor Company, Okmulgee.

PENNSYLVANIA

Studebaker — Broadway Garage, McKees Rocks; Logan Sales and Service, Philadelphia; C. & S. Motor Company, Inc., Scranton; Ben Usher's Garage, Wilkinsburg.

Reo—W. D. Martin, Burgettstown; W. N. Brady's Garage, Reynoldsville; Clarksburg Motor Company, Clarksburg; Union Motor Company, Punxsutawney; J. N. Gregg, Irwin; Hornberger Motor Company, McKeesport; Greensburg Motor Company, Greensburg; Auburn Rosemont Motor Company, Rosemont; Houtzdale Garage, Houtzdale, Rambler Motor Company, Huntington; J. H. Keefer Motors, DuBois; Hi-Way Motor Company, Mount Union; Clark Motor Company, State College; M. M. Pennell, Everett; Joseph H. Levit, Philadelphia; Burholme Motors, Philadelphia; Miller-McKay Motor Company, Upper Darby; Ralph P. Wells, North East; John Wiggers, Corry.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127-136	Lyc	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	§1130	75	Own	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Til	No
Buick 8-50	3170	114	Own	Bish-Bab	O	8	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 8-60	3795	118	Own	Bish-Bab	O	8	3 1/16x4⅝	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 8-80	4255	124	Own	Bish-Bab	O	8	3 1/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 8-90	4340	132	Own	Bish-Bab	O	8	3 1/16x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	Yes	LV	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140-143	Own	Own	O	12	3 1/16x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	No	O	6	3 1/16x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175¾	Own	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	80@3400	*Alum	4	—	AC	Sch	Yes
Chrysler 8 De L.	——	187 3/16	Own	Yes	L	8	3¼x4¼	282.1	5.20	33.80	100@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	Yes	L	8	3½x5	384.8	5.00	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169 3/16	Own	Yes	H	6	3¼x4⅛	205.3	5.35	25.35	72@3400	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*176⅞	Own	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	Dole	L	6	3⅛x4	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	*176 13/16	Own	Yes	L	6	3¼x4¼	211.5	5.31	25.35	74@3400	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	*180 3/16	Own	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 612	2820	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2750	**113	Own	——	†L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	——	L	4	3⅛x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	Bish-Bab	†O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	Bish-Bab	†O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	Bish-Bab	†O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Pros. 6	3100	113	Own	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3115	119-126	Own	Yes	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	——	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125-137	Own	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	Yes	LV	8	3⅜x4 1/16	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	Ful	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	Pines	L	8	2 13/16x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4775	130-136	Own	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	AC	AC	Str	AC
Nash 960	2800	114¼	Own	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124-133	Own	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	Yes	H	8	3 1/16x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	——	L	6	3 1/16x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	Yes	L	8	3 3/16x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	Yes	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 43	4304	134-137	Own	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Han	AC	Str	Un
Pierce-Arrow 41-42	4831	142-147	Own	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Han	AC	Str	Han
Plymouth	2710	*170	Own	——	L	4	3⅝x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	Yes	L	6	3 1/16x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	Yes	L	6	3⅜x5	268.3	5.30	27.34	85@3200	Alum	7	Han	V S	Sch	Un
Reo 8-25	4050	125	Own	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	V S	Sch	Un
Studebaker Six	2920	114	Own	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Pur	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	Dole	L	8	3 1/16x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	Dole	L	8	3 1/16x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres 80	4250	130	Own	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	*4360	136	Own	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	——	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	——	O	8	3⅜x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	——	O	8	3⅜x4½	322	5.50	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	161@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110-113	Own	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	Flo	AC	Til	Til
Willys 8-80 D	3131	121	Own	Var	L	8	3¼x4	245.4	5.26	31.25	80@3200	CI	5	Flo	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Ski	Til	Til	Til
Willys-Knight 95	3122	113	Own	Pines	K	6	2 1/8x4⅜	177.9	5.55	20.7	60@3400	*Alum	7	*	AC	Til	AC

KEY TO ABBREVIATIONS

Weight—§Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,095 pounds, and model U 4,360 pounds. *Studebaker, 7 pass sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con. Continental; Lyc. Lycoming, Hall, De Vaux-Hall Motors Corp.

Thermostat—Bish-Bab. Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful Fulton Co.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Pur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner; Flo, Floato.

*Using both Floato & Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas Gascolator; Ste, Stewart-Warner; Ful Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL Detroit Lubricator; Til Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; Dyn, Owen-Dyneto Corp.; N E, North East. *Nash,—Indicates twin ignition. *Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission Make—D, Detroit Gear; WG, Warner Gear Company; M, Muncie Gear Company; O, Own; N, New Process Gear Corp.; W, Warner Corp. *Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets, according to body type.

Transmission Type—DG, Detroit Gear & Machine Co.; LGS, The LGS Corp.; F, Free Wheeling; SM, Synchro Mesh; BW, Borg-Warner; NP—New Process Gear Corp.

Universals—U, Detroit Universal Products; S, Spicer Mfg. Corp.; O, Own; M, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23. †The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Truvcn, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

SEIBERLING TIRE SALES UP 46% IN SEVEN MONTHS

Akron, O., Sept. 21.—An increase of 46.95 per cent. in sales of tires to dealers in the first seven months of this year over the corresponding period of 1930 was reported here today by F. A. Seiberling, president of the Seiberling Rubber Company. The company's plant at Akron is now working three eight-hour shifts a day, Mr. Seiberling said. The company has just introduced a new type of tire known as the air-cooled tire. Air is forced through the tread of the tire at each revolution of the wheel. This results in dissipating the heat generated in the tread and makes possible the use of thicker tread, thus insuring longer tire life. This principle is the first radical improvement in tire manufacturing methods in many years and is exclusive with Seiberling.

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmission Make	Transmission Speeds	Transmission Type	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Spring Rear	Springs Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	*Del-R	Long	D	3	LGS-F-SM	U	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	*Aut-L	Rock	WG	3	—	S	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 8-50	Tex	Del-R	Del-R	Own	M	3	SM	O	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	O	3	SM	O	Own ¾	4.45	M	Sag	S 55¼	Own	Alem	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	O	3	SM	O	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	O	3	SM	O	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac V-8	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	—	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	O	3	—	O	Own	4.10	M	Sag	S 54	—	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Borg	O	3	BW-F	U	Own ½	4.60	H	War	S 53⅞	Tryon	Al-Z	19x5.25
Chrysler 8 De L.	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	4.30	H	—	S 54⅝	—	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	Borg	O	4	BW-F	—	Own ½	3.82	H	Ross	S 57½	—	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	D	3	—	*	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.33	H	Own	S 53⅜	—	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	Borg	O	3	BW-F	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	N	3	NP-F	S	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	O	3	BW-F	S	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 612	Morse	Aut-L	*Aut-L	Borg	W	3	—	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W	3	—	S	Own ½	4.40	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W	3	—	S	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	5.40	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	*Own	Own	O	3	—	O	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	—	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	*	—	—	M	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	WG	3	—	S	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Bros. 6	Link	Del-R	*Del-R	Long	—	3	BW-F	—	—	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	*Del-R	Long	—	3	BW-F	—	—	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	—	4	BW-F	—	—	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	—	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	—	4	BW-F	—	—	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	O	3	BW-F	S	Own ½	4.75	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	*Aut-L	Borg	WG	3	BW-F	M	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	WG	3	BW-F	U	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	WG	3	BW-F	U	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O	3	SM	S	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	—	Aut-L	*Aut-L	Long	O	3	BW-F	S	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon 70	Diam	Del-R	*Del-R	Rock	WG	3	BW-F	S	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	D	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	M	3	BW-F	S	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.75	M	Ross	S 50⅞	—	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.73	M	Ross	S 50⅞	—	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.46	M	Gem	S 55	—	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O	3	SM-DG-F	—	Own ½	4.50	M	Gem	S 57⅛	—	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M	3	SM	M	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M	3	SM	U	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	6.50x19
Packard 903-904	Morse	N E	Dyn	Long	O	4	SM	M	Own ½	4.66	M	Own	S 60½	Own	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	WG	3		S	Sal ½	4.70	Bendix	Ross	S 56⅝	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	WG	3	BW-F	S	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 43	Gear	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	4.08	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow 41-42	Chain	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	*	Bendix	Ross	S 61	Faf	Al-Z	18x7.00
Plymouth	Var	Del-R	Del-R	Borg	O	3	BW-F	O	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	O	3	—	M	Own ½	4.55	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	O	3	SM	U	Own ½	4.07	H	Ross	S 55¾	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Reo 8-25	Link	Del-R	*Del-R	Long	O	3	SM	U	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	O	3	BW-F	S	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	O	3	BW-F	S	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	—	Del-R	Del-R	Borg	D	4	—	U	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	—	Del-R	Del-R	Long	D	4	—	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	—	Del-R	Del-R	Long	D	4	—	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	—	Del-R	Del-R	Long	D	4	—	M	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.60	Bendix	Own	*S 49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	O	3	BW-F	S	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	O	3	BW-F	S	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00
Willys-Knight 95	Chain	Aut-L	Aut-L	Borg	O	3	BW-F	S	Own ½	4.89	Bendix	Gem	S 51	Tryon	Alem	19x5.00

70,000 in Attendance At Annual Metal Congress

(Continued from Page 1)

"Precious Metal Alloys," and Samuel J. Risenberg read a paper on "The Resistance to Wear of Carbon Steels." W. E. Ruder and Frances H. Clark presided as chairmen at this morning's sessions. The afternoon session convened at 2 o'clock, under H. J. French and R. S. Archer as chairmen.

Technical sessions of the American Welding Society convened at 3 o'clock in the afternoon, with L. S. Moissieff in the chair. The business in hand consisted of a review of the work of the structural steel welding committee of which Mr. Moissieff is chairman. At 6.30 p. m., there was a dinner meeting of the directors of the welding society with President E. A. Doyle presiding.

This is by far the largest gathering of metal trades leaders, particularly in the engineering division, that ever has been held. There may be a business depression in this country, but there is no sign of depression of spirits among the thousands of delegates who are attending the Metals Congress here this week. The talk is all optimism and a looking forward for development and improvement in the vital basic industries that these engineers serve. The plans for technical sessions give a most imposing array of important papers to be read and diversion has not been overlooked. Many of the delegates have brought their wives and plans for entertaining the ladies have received due attention.

JACK HENDRICKS HEADS N. Y. MARMON BRANCH

New York, Sept. 21.—The resignation of E. A. Travis, vice-president and general manager of the Marmon Automobile Company of New York, Inc., and the appointment of Jack Hendricks, Jr., to the post of acting general manager of the company, are announced by officials of the Marmon Motor Car Company. Mr. Hendricks has been general manager of the Indianapolis retail sales branch of the Marmon company for the past three and one-half years.

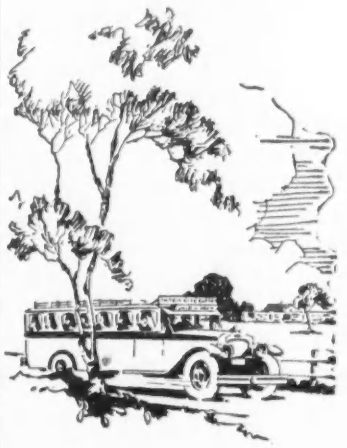
Announcement also has been made of the appointment of C. Frank Wise as acting general manager of the Indianapolis Marmon branch. Wise formerly served as sales manager under Hendricks and has been associated with Marmon for more than six years. All three changes are effective immediately.

CHRYSLER APPOINTED TO RELIEF COMMITTEE

New York, Sept. 21.—Walter P. Chrysler, president of Chrysler Motors, has been appointed a divisional chairman of the Commerce and Industry division of the Emergency Unemployment Relief Committee. Mr. Chrysler will head the activities of the automotive industries in the division.

The Emergency Unemployment Relief Committee has been organized by business leaders to provide unemployment relief in New York this winter. Plans for co-ordinating the task of raising and distributing funds in all five boroughs of the city have been announced. Mr. Chrysler will form a committeen to conduct solicitation among individuals and corporations in the automotive industries. He will be assisted by Theodore S. Avery of the Bankers Trust Company as vice-chairman.

CONTINENTAL MOTORS
Powerful as the Nation
AMERICA'S STANDARD

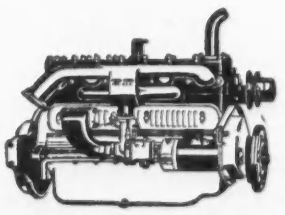


Record of Results

The record of Continental's contributions to the power requirements of hundreds of manufacturers and thousands of consumers, is the result of the co-ordination of men and facilities which have worked toward a common goal. These men and these facilities work now towards new developments—new goals.

CONTINENTAL MOTORS CORPORATION

Offices: Detroit, Michigan, U. S. A.
Factories: Detroit and Muskegon



Continental Engines

Tool Steel From the Consumer's Standpoint

(Continued from Page 6)

grade steel for general cold forming and upsetting purposes."

Steel company C has the following to recommend: "X steel, being a tough steel of medium alloy content, hardens to a great depth and will stand high pressure. It is chiefly used for tools which are specially required to resist pressure such as rivet dies and cold heading dies, etc."

Steel company D says: "This is a selected steel for a specific purpose and is recommended for all tools used in connection with pneumatic hammers and for everything that is subjected to a succession of rapid blows."

Steel company E says: "X steel is a carbon-vanadium tool steel, possessing all the characteristics of a straight carbon tool steel . . . greater resistance to fatigue and superior cutting qualities. X steel is used in making taps and reamers, cold heading dies and rivet sets."

Again, let us assume that we want to select a steel for drawing dies; by following the similar procedure we find that the steel company A says this: "X steel is a water hardening steel of most enduring qualities for tools that must retain their size with a minimum amount of wear, such as drawing and master dies. X steel is one of the longest wearing steels made."

Company B Says: "Steel X is a high grade alloy steel recommended for hard dies for general cold drawing work. It becomes excessively hard with a sort of self-lubricating surface" . . . . etc.

Steel company C says: "We recommend X steel for blanking and trimming dies subject to very high pressure and severe duty. It will also give excellent service for wire drawing plates for steel wire, copper and brass wire, also for complicated and expensive dies where value is laid upon a keen cutting edge resisting abrasion."

Steel company D says: "X, a super die steel that knows no master, designed specially to meet the extacting requirements of accuracy and production demanded by twentieth century efficiency engineers. It possesses the maximum resistance to abrasion, sinking and wear of any die steel known."

Steel company E says: "X steel is the very highest grade of tempering steel, recommended for drawing dies for brass and copper and for blanking dies for hard materials."

The quotations illustrate the third method of selecting tool steels. While they have been quoted here not with a view to criticize the substance of these recommendations, although they are of much help to the person who is in pursuit of the best and carry weight of confidence and certainty based on the integrity and experience of the maker, they still lack that quantitative information which the engineer is looking for. These recommendations give no me measurable data on the properties which each manufacturer claims his product possesses. If the required chief properties of a header die are resistance to impact and wear, it is reasonable to expect that these properties be given in numerical values in terms of some accepted standard method of testing these properties.

Again, if the principal requirements of a cold drawing die are strength and ability to wear, it is quite necessary that these properties of a steel recommended for that purpose be given in numerical values in terms of some accepted method of testing wear and strength so as to enable the user to select the proper steel.

The fourth method of selecting tool steel is what is called the service test. The basis of this test has a similar meaning in its final analysis as the popular saying that "the proof of the pudding is in the eating"; but one must not forget that there has always been considerable difference in the tastes of the persons eating the pudding.

The service test is, perhaps, the only test approximating the true test. Its value, therefore, should not be underestimated, yet it is a fact that often the results of the service test greatly differ, in similar applications under presumably similar conditions. And the fact that quite often the same kind of steel made into the same class of tools and heat treated similarly but used by different operators shows contradictory results, it becomes quite evident that even the service test is not to be too confidently considered as a satisfactory method of telling the true and intrinsic values of various kinds of steel, and so long as the conditions surrounding such tests often vary from plant to plant, the service test will always be a source of uncertainty and contradiction to the consumer and unfairness to the steel maker. Moreover, the service test often is expensive and lacks the simplicity of a standard test.

If what has been said about the principal methods of selecting tool steel in use at present is true, namely, none of them gives the necessary information regarding the absolute and inherent properties of a given type of tool steel, then we want to know if it is ossible to catalogue, so to speak, the various properties of tool steels, such as wearing, shock resisting, cutting, shrinking, fatigue and other characteristics, in definite and comparable figures in the same manner that tensile, yield, elongation, etc., properties of structural steels are catalogued for the more intelligent use of the structural, automobile and aircraft engineers. For instance, we have the problem of measuring wearing properties of tool steel. There we have straight wear like in a cold drawing die; impact wear like in a header die; rolling wear like in a ball or roller bearing. How can these different forms of wear be reliably tested or measured? These and other properties which we want to measure render the problem of devising testing methods for tool steel quite difficult. Yet in face of these difficult problems we have the fact that man has succeeded in solving even more difficult problems, and the speed and thoroughness with which he has solved them have depended on the eagerness and the determination with which he has engaged in his task.

The author, in an effort to ascertain the relative values of a few types of tool steels for cold drawing dies, made the following experiment:

Eight different brands of steel recommended for drawing dies were picked up and from each three drawing dies were made. Then each set of dies were heat treated according to the instructions of the manufacturers. The dies were tried on drawing admiralty tubes under practically similar conditions. A careful record was kept of the number of feet of tubing drawn per die and the amount of wear of the diameter of each die. The commercial rating of the different brands of steel and the wearing properties, as measured in terms of number of feet of tubing drawn per .001 inch wear in the diameter of the die, are given in the following table.

In the table the steel costing the most is given a commercial rating of 100 per cent. and the steel showing the maximum number of feet of tubing per .001 inch wear in the diameter of the die is given a maximum wearing property of 100 per cent.:

Steel No.	Commercial Rating	Wearing Property
1	100%	34%
2	83%	26%
3	72%	21%
4	72%	31%
5	72%	100%
6	63%	82%
7	56%	24%
8	45%	31%

From the above table it will be noted that there is no relation between the commercial rating of these steels and their wearing properties, namely, that the steel that has the highest commercial rating is the third in wearing property and the steel that is fifth in commercial rating is the highest in wearing property.

As mentioned above, the designer of a machine has at his disposal a vast amount of available data on the physical properties of many types of steels. For parts of his machine that are subject to wear, tension, compression, impact, etc., he can select steels that fulfill these requirements in various degrees. Similar information is available to the designer of a structure, automobile, vessel, locomotive, dirigible and airplane; but when it comes to tools the designer has only vague and meager information as to the properties of a thousand and one kinds of tool steel on the market, from which he must select his material for tools requiring different characteristics. Is it not, therefore, worthy of serious consideration of both tool steel maker and the consumer to determine the requisite physical properties of tool steels and make them available to the designer of tools?

PETROLEUM INDUSTRY CO-OPERATION URGED TO PREVENT WASTE

Atlantic City, N. J., Sept. 21.—"Intelligent co-operation" was urged upon the petroleum industry here in order to avoid ruinous overproduction by James A. Emery, general counsel for the National Association of Manufacturers, who addressed the annual meeting of the National Petroleum Institute.

Emery, an authority on anti-trust legislation, stated that regardless of past interpretations of the Sherman act, government co-operation with the oil industry should be extended in order to save the industry from wasting its resources.

"Why is it sound policy to exert the whole force of legislative and executive authority to prevent overproduction of foodstuffs?" Emery asked, "while one Cabinet officer finds it necessary to remind another that an agreement to conserve oil in the ground is illegal.

"If it be true that the government can adequately protect the public interest while urging agricultural co-operation to control a surplus and prevent price decline, why is it wise to continue a policy which prohibits indispensable co-operation to prevent an equally destructive surplus in the natural resource industries?

"What is sauce for the agricultural goose ought to be the same for the industrial gander."

The speaker said that it was neither desirable nor practicable to modify or repeal the basic safeguards of the Sherman act. "Human nature being what it is, there are always likely to be combinations which threaten the freedom of trade or the trader. But if the public interest is not served by a continuing surplus of foodstuffs, it is not benefited by the waste of our natural resources or demoralization and consequent unemployment.

"The government cannot contribute to essential adjustment by arbitrary exceptions or the urging of private control of production in particular industries while forbidding it in others.

"Voluntary private co-operation to control drastic overproduction under administrative supervision, protecting the public against artificial restriction, can alone accomplish the desired result. The national resource industries are the obvious area for immediate application of such a policy. The President and official commissions recognize and recommend it. The existing situation demands it."

The meeting was told that regardless of what the best legal minds have had to say upon the subject, the anti-trust issue is now conclusively determined only by litigation requiring years for a final answer. "No administrative tribunal exists which will determine that attitude of the government toward a submitted proposal to reconcile production to demand," Emery continued.

"If the secretary of agriculture should proceed against an offender in the agricultural industry, which he has not found it necessary to do in the past seven years, he would threaten no one with indictment or confiscation, but the issuance of an administrative order forbidding the prescribed act."

J. W. BROWN APPOINTED

Memphis, Tenn., Sept. 21.—Johnson Motors, Inc., 1011 Union Ave., has just announced the appointment of J. Wayne Brown as manager of the used car department.

Today at the Metal Congress

American Society for Steel Treating

Morning Session—Sheet Steel Session—**Statler Ballroom, 9.30 A. M.**
Joint chairmen, M. J. R. Morris and Howard J. Stagg.

9.30 A. M.—"The Evaluation of the 'Drawing' Quality of Extra Deep Drawing Sheets," by Thomas Dockray, Eastern Rolling Mill Company, Baltimore.

9.50 A. M.—"Thin Strip Steel for Deep Drawing," by H. T. Morton and I. A Rummler, Hoover Steel Ball Company, Ann Arbor, Mich.

10.10 A. M.—"Some Effects of the Amount and Rate of Deformation on a Low Carbon Strip Steel," by Joseph Winlock and A. E. Lavergne, Edward G. Budd Mfg. Co., Philadelphia.

10.30 A. M.—"Comparison of Sheet and Strip Steels for Difficult Stampings," by Edward S. Lawrence, Duraloy Company, Pittsburgh.

10.50 A. M.—"Effect of Normalizing on the Grain Structure and Physical Properties of Automobile Sheet Steel," by William F. McGarrity, Youngstown Sheet and Tube Company, Youngstown, O., and H. V. Anderson, Lehigh University, Bethlehem, Pa.

11.10 A. M.—"Plastic Drawing of Sheet Steel Into Shapes," by E. V. Crane, E. W. Bliss Company, Brooklyn, N. Y.

11.30 A. M.—"Lubricants Used in Deep Drawing of Sheet Steel," by Maurice Reswick, Pennsylvania Lubricating Company, Pittsburgh.

Afternoon Session, Statler Ballroom, 2.00 P. M.

Joint chairmen, Albert Sauveur and H. M. Boylston.

2.00 P. M.—"Identification of Inclusions in Steels," by Leland E. Grant, Chicago, Milwaukee, St. Paul & Pacific Railway Company, Milwaukee.

2.25 P. M.—"Effect of Heat Treatment Upon Ferrite Banding of Steel," by W. E. Harvey and Bradley Stoughton, Lehigh University, Bethlehem, Pa.

2.50 P. M.—"Ghost Lines in Forgings," by J. Fletcher Harper and H. J. Stein, Allis-Chalmers Mfg. Company, Milwaukee.

3.15 P. M.—"Solubity of Oxygen in Solid Iron," by N. A. Ziegler, Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

3.40 P. M.—"Scaling of Steel at Elevated Temperatures by Reaction With Gases and the Properties of the Resulting Oxides," by D. W. Murphy, William P. Wood, University of Michigan, Ann Arbor, Mich., and W. E. Jominy, A. O. Smith Corporation, Milwaukee.

4.05 P. M.—"Aqueous Solutions of Ethylene Glycol, Glycerine and Sodium Silicate as Quenching Media for Steels," by T. E. Hamill, U. S. Bureau of Standards, Washington, D. C.

American Institute of Mining and Metallurgical Engineers

8.30 A. M.—Inspection trip to Watertown Arsenal, Watertown, Mass.

9.30 A. M.—Institute of Metals Division, Georgian Room, Hotel Statler.

Copper and Copper Alloys Session.

J. L. Christie, Bridgeport Brass Company, Bridgeport, Conn., chairman.
W. A. Schleuch, Western Electric Company, Chicago, vice-chairman.

"Equilibrium Diagram of the Copper-Rich Copper-Silver Alloys," by Cyril Stanley Smith and W. Earl Lindlief, American Brass Company, Waterbury, Conn. (T. P. 433.)

"The Beta to Alpha Transformation in a Hot Forged Brass Shape," by Robert S. Baker, American Brass Company, Waterbury. (Pre.)

"Copper Embrittlement," by L. L. Wyman, General Electric Company, Schenectady. (Pre.)

"Some Important Factors Controlling the Crystal Macrostructure of Copper Wire Bars," by L. H. DeWald, Western Electric Company, Chicago. (T. P. 429.)

"Effect of Secondary Copper on the Metal Market and Its Relation to Domestic Production and Consumption," by Percy E. Barbour, New York. (M. & M.)

Afternoon Session

12.15 P. M.—Luncheon meeting, executive committee, Institute of Metals Division, Parlor B, Hotel Statler.

2.00 P. M.—Institute of Metals Division, Georgian Room, Hotel Statler.

General Session.

E. M. Wise, International Nickel Company, Bayonne, N. J., chairman.
T. S. Fuller, General Electric Company, Schecentady, vice-chairman.

"Influence of Stress on Corrosion," by D. J. McAdam, Jr., Bureau of Standards, Washington. (T. P. 417.)

"Seasonal Variation in Rate of Impingement Corrosion," by Alan Morris, Bridgeport Brass Company. (T. P. 431.)

"Relation of Crystal Orientation to the Bending Qualities of a Rolled Zinc Alloy," by Gerald Edmunds and M. L. Fuller, New Jersey Zinc Company, Palmerton, N. J. (Pre.)

"Preferred Orientation Produced by Cold Rolling in Sheets of Aluminum, Nickel, Copper and Silver," by Cleveland B. Hollabaugh and Wheeler P. Davey, Pennsylvania State College.

American Society of Mechanical Engineers

Morning Session

Sheet Steel Session.

Members may attend the session on sheet steel rolling, in which the Iron and Steel Division co-operates with the A. S. S. T.

Alternative is a trip to Watertown Arsenal.

Afternoon Session

Technical Session, Machine Shop Practice Division.

F. C. Spencer, chairman.

"Power Transmission With Cast Iron Pulleys and Paper Pulleys," by C. A. Norman and G. N. Moffatt, Ohio State University, Columbus, O.

"Positive Drive Equipment," by C. R. Weiss, Link Belt Company, Indianapolis.

"Radiographic Inspection of Steel Castings and Welded Structures," by H. R. Isenberger, St. John X-Ray Corporation, New York.

Moving pictures of research work in gears at Westinghouse Electric and Manufacturing Company and on German machine tool progress as exhibited at the Leipzig Trade Fair.

A Candid Question to the Advertiser

Who gets LESS for *What He* Sells *than he did in 1928:*

Are you getting MORE from what you *BUY* in 1931-1932?

COMPARE
With Any Other Magazine

HOW MUCH?

Liberty averaged 2,401,416 weekly circulation for 1930, 2,411,612 for the first half of 1931.

WHO?

Liberty is deliberately edited for *both* men and women. It is read by 2,750,000 men and 3,009,000 women. Result records have been broken for men's and women's products alike.

80% of all Liberty families above $2,000 income class 65.8% U. S. average

52% own homes 37% U. S. average*

84% have telephones 39% U. S. average

58% have radios 46% U. S. average

50% have vacuum cleaners 37% U. S. average

34% have electric washers 29% U. S. average

15% have mechanical refrigerators 8% U. S. average

**In cities covered by Starch Survey*

WHERE?

Liberty concentrates three-quarters of its circulation in cities over 25,000 population. Liberty places more circulation here (where major part of all retail business is done) than any other magazine.

HOW READ?

Liberty is wanted enough by its readers, that 99% of them buy voluntarily week after week. No expensive subscription crews are necessary to sign up readers 6 months or a year or two in advance. 99% single copy circulation is 99% guaranteed-to-be-read circulation.

Then, instead of burying 90% of its advertisements after the start of the *last* story, Liberty alternates advertisements and story leads throughout the book. Surveys show this nearly doubles readers-per-advertisement.

THE YARDSTICK OF CIRCULATION QUALITY

IF declining commodity prices have put your dollar volume out of step with your unit sales . . . . .

Are you meeting your diminished receipts by:

1. Diminished outlay, or by
2. Increased value for your outlay?

While it is true that magazines in the aggregate have decreased their costs but a fraction of a per cent in the face of a 30 per cent commodity price decline, it is also true that many of them have increased the physical attractiveness of their format.

A more direct argument against diminished outlay, however, may be found in Liberty, whose cost has declined 35 per cent since 1926—while its physical attractiveness is now on the way to being enhanced to the tune of more than a quarter-million dollars a year.

A New Opportunity

Liberty was already a phenomenal circulation success when it was acquired by Macfadden Publications, Incorporated, this past April. Its editorial policy of dramatic, newsy, concise material from famous authors and illustrators has, therefore, been continued.

But $100,000 more a year is being spent on these editorial and art activities. In addition a new paper contract has just been made—the largest quality paper order ever placed by a single magazine—which will start Liberty off in 1932 with a mechanical reproduction worth $160,000 more, annually.

What This Means to Advertisers

Now advertisers have been attracted to sharpen their pencils and figure. Your Post-Depression dollar can buy:

Liberty	565 families
Average of 3 other Weeklies . .	377 families
Average of 2 Monthlies	391 families
Average of 6 Women's Magazines	286 families

Advertisers who want to match Post-Depression profits with Post-Depression advertising value find, therefore, that Liberty will increase their appropriation's effectiveness:

50 per cent more than other Weeklies
45 per cent more than Monthlies
98 per cent more than Women's Magazines

Proof of Timeliness

That Liberty's new management came at the so-called psychological moment may be indicated by the fact that within 60 days 92 advertisers and 58 agencies had placed $1,521,677 in new orders.

Judged by the rate at which new contracts are arriving as the main list-making season approaches, Liberty is now being regarded as not merely "another good magazine," but as a logical market for bulking Post-Depression appropriations.

The answer to diminished profits need not be found in diminished appropriations so long as 50 to 100 per cent greater value may still be bought.

Write without obligation for booklet: "To every man with $1 to spend in advertising." Liberty Magazine, 2733 Graybar Building, New York City.

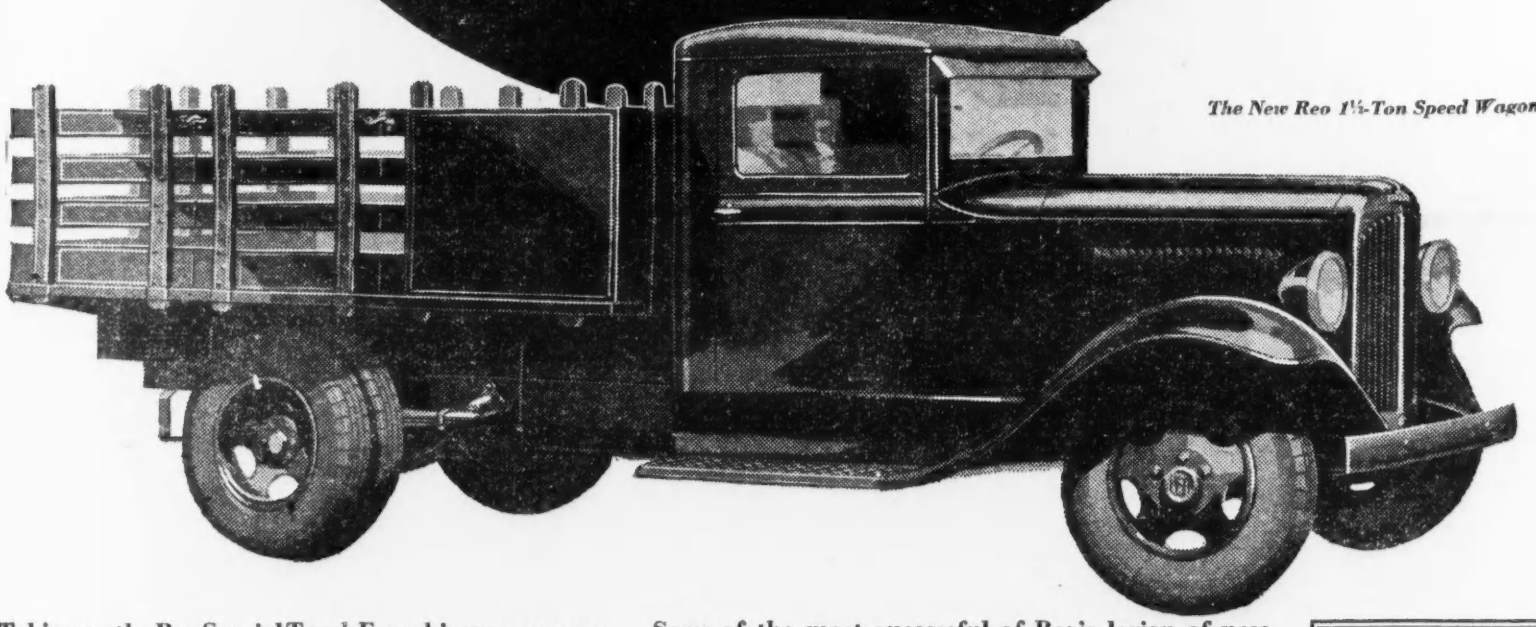
AMONG ADVERTISERS NOW APPEARING IN LIBERTY

American Safety Razor Corp.
American Tel. & Tel. Co.
American Tobacco Co.
Axton-Fisher Tobacco Co.
B. V. D. Co.
Barbasol Co.
Bauer & Black
Beech-Nut Packing Co.
Borden Co.
Bristol Myers Co.
Brown & Williamson Tobacco Co.
Chesebrough Mfg. Co.
Chi., Mil., St. Paul & Pac. R.R.
Chrysler Motors Corp.
Cluett-Peabody & Co.
Coca-Cola Co.
Columbia Pictures Corp.
Crosley Radio Corp.
R. B. Davis Co.
Jos. Dixon Crucible Co.
Encyclopaedia Britannica, Inc.
Ethyl Gasoline Corp.
Florida Citrus Exchange
General Motors Corp.
Gillette Safety Razor Co.
Alexander Hamilton Institute
Hewes & Potter
Hinze Ambrosia, Inc.
Chas. E. Hires Co.
Houbigant, Inc.
Indian Refining Co.
International Mercantile Marine
Jantzen Knitting Mills
Johnson & Johnson
Kellogg Co.
Kolynos Co.
Kress & Owen Co.
Lambert Pharmacal Co.
Larus & Bros. Co.
Lever Bros. Co.
Mennen Co.
Philip Morris & Co.
Northwestern Yeast Co.
Norwich Pharmacal Co.
Parker Pen Co.
Pepsodent Co.
Pompeian Co., Inc.
R. C. A.-Victor Corp.
R. J. Reynolds Tobacco Co.
Sinclair Refining Co.
A. G. Spalding & Bros.
Stanco, Inc.
A. Stein & Co.
Texas Co.
Vapo Cresolene Co.
Veldown Company, Inc.
Wander Co.
G. Washington Coffee Co.
L. E. Waterman Co.
R. L. Watkins Co.
Western Clock Co.
W. F. Young Co.
Zonite Products Corp.

Liberty... *a weekly for the whole family*
PRICED FOR *POST*-DEPRESSION

SPECIAL FRANCHISE

Reo's Newest Dealers are Selling Trucks



The New Reo 1½-Ton Speed Wagon

Taking on the Reo Special Truck Franchise means more than just having "something else to sell."

It means SALES!

Dealers who joined the Reo organization since July 1 have already accounted for hundreds of Speed Wagon sales.

This remarkable fact indicates two things very clearly—1—That the new Reo Speed Wagon at $625 so far overshadows other trucks in the lowest price field that sales *must* follow wherever it is properly presented.

2—That Reo supports its dealers with a sales plan that enables them to present it properly, and thereby turn quick, profitable deals.

Some of the most successful of Reo's legion of new dealers—over 440 since July 1—never sold anything but passenger cars before. They are proving that *aggressive* merchants can sell trucks, as well.

The Reo Special Truck Franchise fits in perfectly with almost any passenger car line. It broadens your operations, increases your contacts—and benefits both lines.

The opportunity in your territory may still be open. Why not tell us what area you are interested in—and have a Reo representative bring you specific facts and figures regarding the volume you could expect this year?

REO MOTOR CAR COMPANY, LANSING • TORONTO

SPECTACULAR VALUES IN PASSENGER CARS

Reo passenger cars, too, afford Dealers an exceptional opportunity for year-round profits. The quality is extraordinary—and the prices spectacular.

Flying Clouds		Reo-Royales	
6-21	$ 995	8-31	$1985
8-21	$1195	8-35	$2445
8-25	$1565	8-52 (7-Pass. Sedan)	$3695

Standard Model Prices—f. o. b. Lansing

Since July First, Over 440 New Dealers Have Signed Reo Contracts!

THE NEW

REO $625

1½ TON SPEED WAGON

Four-Cylinder $625, Six-Cylinder $725

Chassis f. o. b. Lansing, Michigan — Dual Wheels $22 Extra

REO MOTOR CAR COMPANY, Lansing, Michigan ADN 922

Please send me at once—either by letter or through your representative—details of the Reo Special Truck Franchise

Line (s) now handled_____

My Firm Name_____

Address_____ (City) _____ (State)

By_____